

Supporting Statement
Roof Control Plan for Underground Coal Mines

OMB Control	30 CFR Citations	Title
1219-0004	§ 75.215	Longwall mining systems
	§ 75.220(a)(1)	Roof control plan
	§ 75.221(a)	Roof control plan information
	§ 75.222(a)	Roof control plan-approval
	§ 75.223(a), (b), & (d)	Evaluation and revision of roof control plan

A. JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

Section 302(a) of the Federal Mine Safety and Health Act of 1977 (Mine Act) 30 U.S.C. 846, requires that a roof control plan and revisions thereof suitable to the roof conditions and mining system of each coal mine be first approved by the Secretary of Labor (Secretary) before implementation by the operator. The plan must show the type of support and spacing approved by the Secretary, and the plan must be reviewed at least every six months by the Secretary.

30 CFR 75.220(a)(1) requires each mine operator to develop and follow a roof control plan, approved by the District Manager, that is suitable to the prevailing geological conditions and the mining system to be used at the mine. The standard also requires that additional measures are to be taken to protect persons if unusual hazards are encountered.

30 CFR 75.221(a) requires specific information be submitted and approved in the roof control plan to include the following: (1) the name and address of the company (2) the name, address, mine identification number and location of the mine; (3) the name and title of the company official responsible for the plan; (4) a description of the mine strata; (5) a description and drawings of the sequence of installation and spacing of supports for each method of mining used; (6) the maximum distance that an ATRS system is to be set beyond the last row of permanent support (if applicable); (7) specifications and installation procedures for liners or arches (if applicable); (8) drawings indicating the planned width of openings, size of pillars, method of pillar recovery, and the sequence

of mining pillars; (9) a list of all support materials required to be used in the roof, face and rib control system; (10) the intervals at which test holes will be drilled when mechanically anchored tensioned roof bolts are used; (11) a description of the methods to be used for the protection of persons from falling material at drift openings and when mining approaches within 150 feet of an outcrop; and (12) a description of the roof and rib support for location of refuge alternatives. Under 30 CFR 75.215, the roof control plan for each longwall mining section is required to specify the methods that will be used to maintain a safe travelway out of the section through the tailgate side of the longwall and the procedures that will be followed if a ground failure prevents travel out of the section through the tailgate side of the longwall.

Roof control plans, and revisions to those plans, are evaluated by Mine Safety and Health Administration (MSHA) specialists in accordance with the criteria set forth in 30 CFR 75.222. The District Manager may require additional measures in plans and may approve roof control plans that do not conform to the applicable criteria in this section, provided that effective control of the roof, face, and ribs can be maintained.

30 CFR 75.223(a) requires a mine operator to propose revisions to the roof control plan when conditions indicate that the plan is not suitable for controlling the roof, face, ribs, or coal or rock bursts, or when accident and injury experience at the mine indicates the plan is inadequate. This section also requires the accident and injury experience at each mine to be reviewed at least every six months. Under § 75.223(b) operators are also required to plot on a mine map each unplanned roof or rib fall and coal or rock burst that occurs in the active workings when certain criteria are met. Section 75.223(d) requires MSHA to review the plan every 6 months. This review requires MSHA to take into consideration any falls of the roof, face and ribs and the adequacy of the support systems used at the time.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the agency has made of the information received from the current collection.

Roof Control plans provide the means to instruct miners in the proper use and placement of roof supports. The plan also provides a reference for mine supervisors to ensure that the mine is in compliance with the MSHA regulations relating to roof control. Roof control plans are evaluated by MSHA personnel to ensure that mine operators have complied with the regulatory provisions outlined in 30 CFR 75.202 through 75.223. MSHA inspectors also refer to the plans when they are conducting safety and health inspections at the mines.

Approved roof control plans from the different MSHA coal mine safety and health districts are reviewed by MSHA roof control specialists to determine compliance with the regulations and to evaluate the roof and rib support methods used to provide a safe working environment. As roof control questions arise, the review of different roof control plans can provide solutions to problems that have been successfully addressed

by other districts. The sharing of roof control plans within the agency also allows inspectors to communicate the latest mining technology to the nation's mine operators and miners. It allows operators and miners to take advantage of MSHA's technical ground support group that conducts studies on mining and support methods and evaluates their effectiveness. The success of this program is evidenced by the fact that Technical Support has evaluated numerous hazardous ground conditions at the nation's mining operations and suggested prudent methods of support based on scientific and proven ground control methods.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden.

No improved information technology has been identified that would reduce the existing burden. Mine operators may submit the required information electronically.

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purposes described in Item 2 above.

Roof control plans are developed to address the unique roof conditions and mining methods at each mine. There is no similar or duplicate information that could be used.

5. If the collection of information impacts small businesses or other small entities (Item 5 of OMB Form 83-1), describe any methods used to minimize burden.

This information collection does not have a significant impact on small businesses or other small entities.

6. Describe the consequence to Federal program or policy activities if the collection is not conducted or is conducted less frequently, as well as any technical or legal obstacles to reducing burden.

Roof control plans must be submitted by a mine operator when a new mine opens and when revisions are necessary. Revisions of an existing plan are necessary either due to conditions that indicate the plan is not suitable for controlling roof conditions (i.e., the roof, face, ribs, or coal or rock bursts) or accident and injury experience at the mine indicates the plan is inadequate. MSHA reviews the plans every 6 months to ensure that the roof control methods are adequate for the conditions and mining methods used at the mine. Without a valid plan, MSHA would not be able to determine whether

miners were being exposed to hazardous roof conditions that could jeopardize their safety.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- * requiring respondents to report information to the agency more often than quarterly;**
- * requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
- * requiring respondents to submit more than an original and two copies of any document;**
- * requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records, for more than three years;**
- * in connection with a statistical survey, that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
- * requiring the use of a statistical data classification that has not been reviewed and approved by OMB;**
- * that includes a pledge of confidentiality that is not supported by authority established in statute or regulation, that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or**
- * requiring respondents to submit proprietary trade secrets, or other confidential information unless the agency can demonstrate that it has instituted procedures to protect the information's confidentiality to the extent permitted by law.**

This collection of information is consistent with the guidelines found in 5 CFR 1320.5. While there is no specific provision requiring that roof control plans be maintained for at least three years, there must be a valid plan in effect for the entire time the mine is in operation. Without a valid plan, MSHA would not be able to determine whether miners were being exposed to hazardous roof conditions that could jeopardize their safety.

8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection prior to submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to these comments. Specifically address comments received on cost and hour burden.

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, disclosed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every 3

years - even if the collection of information activity is the same as in prior periods. There may be circumstances that may preclude consultation in a specific situation. These circumstances should be explained.

MSHA published a 60-day Federal Register notice on April 27, 2012 (77 F.R. 25205). MSHA received one comment. The comment supported the continued collection of all information required by 30 CFR Part 75 Subpart C - roof support and suggested that the information collected be as detailed and as available to miners as possible. MSHA agrees that District Managers should not approve roof control plans that do not contain at least the detail required under these standards and that the plans and any revision should be readily available to miners. MSHA appreciates other comments relating to the posting of plan revisions on mine bulletin boards, staffing of roof control specialists in the district offices, and reviewing roof control plans more frequently, however, these comments are beyond the scope of this information collection renewal. The commenter also expressed concern that MSHA had removed existing requirements under § 75.215 from inclusion in the roof control plan. However, those requirements have not changed.

9. Explain any decision to provide any payment or gift to respondents, other than remuneration of contractors or grantees.

MSHA does not provide payment or gifts to the respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

There is no assurance of confidentiality provided to respondents.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

There are no questions of a sensitive nature.

12. Provide estimates of the hour burden of the collection of information. The statement should:

*** Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the**

variance. Generally, estimates should not include burden hours for customary and usual business practices.

*** If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens in Item 13 of OMB Form 83-I.**

*** Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories. The cost of contracting out or paying outside parties for information collection activities should not be included here. Instead, this cost should be included in Item 13.**

30 CFR 75.220 requires that each underground coal mine operator develop a roof control plan. 30 CFR 75.221(a) lists 12 items of information required to be included in each roof control plan, ranging from name, address, mine identification number, and location of the mine to a typical columnar section of the mine strata which identifies the type of strata and shows the thickness of each stratum up to and including the main roof above the coal bed for distance of at least 10 feet below the coal bed. Also, mine operators are required under 30 CFR 75.215, to specify the methods in the roof control plan that will be used to maintain a safe travelway out of the longwall mining section through the tailgate side of the longwall and the procedures that will be followed if a ground failure prevents travel out of the section through the tailgate side of the longwall.

Some of the required information may be retrieved by the operator fairly easily although other information may require more research time, especially when developing a new plan.

Revisions to plans, because they are based on an existing plan, do not require as much time. Revisions may be required as a response to an existing problem, or when instituting new technology, or as a cost savings to the mine operator. Again, some revisions may be more complex than others.

MSHA employees with experience preparing roof control plans while employed by industry have helped the Agency substantiate the time required to produce roof control plans.

According to MSHA records, there are 549 underground coal mines, all of which are required to develop and submit roof control plans. In 2010, new roof control plans were submitted for 382 of those mines. While roof control plans vary according to the size and complexity of each individual mine, MSHA estimates that it takes approximately 24 hours for a mine operator to prepare a new roof control plan. The Supervisor/Operator wage rate of \$84.69 was used for these burden calculations (U.S. Coal Mines Salaries, Wages, and Benefits - 2010 Survey Results, InfoMine USA, Inc., 2010).

382 mine new plans x 24 hours/plan
hours = 9,168

$$9,168 \text{ hours} \times \$84.69 \text{ per hour} = \$776,438$$

In addition, MSHA estimates that each mine operator may need to submit plan revisions. An operator may submit more than one revision if conditions require it. In 2010, MSHA received 1,255 plan revisions. MSHA estimates that it takes a mine operator approximately 5 hours to draft a plan revision.

$$1,255 \text{ revisions} \times 5 \text{ hours/revision} = 6,275 \text{ hours}$$

$$6,275 \text{ hours} \times \$84.69 \text{ per hour} = \$531,430$$

Underground coal mine operators are also required to plot each unplanned roof fall, rib fall, and coal rock burst on a mine map when such incidents meet the criteria specified in 30 CFR 75.223(b). MSHA estimates that it takes 5 minutes (0.08 hours) to plot a roof fall or a coal or rock burst on a map. There were approximately 1,514 unplanned roof falls and coal or rock bursts which met such specified criteria and that occurred in underground coal mines in 2010.

$$1,514 \text{ roof falls/coal/rock bursts} \times 0.08 \text{ hours} = 121 \text{ hours}$$

$$121 \text{ hours} \times \$84.69 \text{ per hour} = \$10,247$$

Total Burden Hours	=	15,564 hours
Total Burden Hour Cost	=	\$1,318,115

Estimated Annualized Burden Hours and Costs								
Type of Respondent	Standard/ Collection Activity	No. of Respondents	No. of Responses per Respondent	Total No. of Responses (rounded to whole numbers)	Avg. Burden per Response (in hours)	Total Annual Burden (in hours/ rounded to whole numbers)	Avg. Hourly Wage Rate*	Total Annual Respondent Cost
Business or other for-profit	30 CFR 75.220, 75.221(a), and 75.215/ Plans	382	1	382	24 hours	9168 hours	\$84.69	\$776,438
Business or other for-profit	30 CFR 75.220, 75.221(a), and 75.215, 75.222 and 75.223(a)/ Plan Revisions	549	2.2313	1,255	5 hours	6,275 hours	\$84.69	\$531,430
Business or other for-profit	30 CFR 75.223(b)/ Plots of unplanned roof falls, rib falls, and coal rock bursts	549	2.7577	1,514	.08 hours	121 hours	\$84.69	\$10,247
Total		549		3,151		15,564 hours		\$1,318,115

13. Provide an estimate for the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14).

*** The cost estimate should be split into two components: (a) a total capital and start-up cost component (annualized over its expected useful life) and (b) a total operation and maintenance and purchase of services component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.**

*** If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collections services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondents (fewer than 10), utilize the 60-day pre-OMB**

submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.

* Generally, estimates should not include purchases of equipment or services, or portions thereof, made: (1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.

Operation and Maintenance: MSHA estimates that the average copying and mailing cost for a new roof control plan or a plan revision is \$5.00

382 Plans (1,910.00)

+1,255 Plans (6,275.00)

1,637 new and revised plans x \$5.00 = \$ 8,185

Total Annual Cost Burden = \$ 8,185

14. Provide estimates of annualized costs to the Federal government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), and any other expense that would not have been incurred without this collection of information. Agencies may also aggregate cost estimates from Items 12, 13, and 14 in a single table.

MSHA estimates that it takes approximately 16 hours to review and approve a new roof control plan. A salary (including benefits) of \$61.32 per hour for an MSHA roof control specialist, Grade 12, was used for these calculations (2010 U.S. OPM Full-time Employment Data).

382 new plans x 16 hours/plan = 6,112 hours

6,112 hours x \$61.32 = \$ 374,788

In 2010, MSHA received 1,255 roof control plan revisions. MSHA estimates that it takes approximately 4 hours to review a plan revision.

1,255 revisions x 4 hours/plan = 5,020 hours

5,020 hours x \$61.32 per hour = \$ 307,826

Total Cost to the Government = \$ 682,614

15. Explain the reasons for any program changes or adjustments reported in

Items 13 or 14 of the OMB Form 83-I.

Respondents: The number of underground coal mines requiring roof control plans decreased 64 from 613 to 549.

Responses: The number of new roof control plans increased from 296 to 382; the number of plan revisions increased from 1,108 to 1,255; and the number of unplanned roof falls and coal or rock bursts decreased from 2,112 to 1,514. This is an overall reduction in the number of responses of 598 (3,516 – 3,151).

Itemized Changes in Annual Burden Hours						
Regulation/ Data collection Activity	Program Change (hours currently on OMB Inventory)	Program Change (New)	Difference	Adjustment (hours currently on OMB Inventory)	Adjustment (New)	Difference
30 CFR 75.220, 75.221(a), and 75.215/ Plans				7,104	9,168	+ 2,064
30 CFR 75.220, 75.221(a), and 75.215, 75.222 and 75.223(a)/ Plan Revisions				5,540	6,275	+735
30 CFR 75.223(b)/ Plots of unplanned roof falls, rib falls, and coal rock bursts				169	121	-48
Total(s)				12,813	15,564	+2,751

Burden Hours: The total number of burden hours increased 2,751 hours from 12,813 hours to 15,564 hours. Most of the increase in hours was a result of more new roof control plans being developed; these require a greater number of hours to complete than revisions to existing plans. This update of 1219-0004 subsumed § 75.221(a)(12) from ICR 1219-0146 - refuge alternatives. This burden transfer (0 hours) is a discretionary change.

Itemized Changes in Annual Cost						
Regulation/ Data collection Activity	Program Change (cost currently on OMB Inventory)	Program Change (New)	Difference	Adjustment (cost currently on OMB Inventory)	Adjustment (New)	Difference

30 CFR 75.220, 75.221(a), and 75.215/ Plans				\$1,480	\$1,910	+ \$430
30 CFR 75.220, 75.221(a), and 75.215, 75.222 and 75.223(a)/ Plan Revisions				\$5,540	\$6,275	+\$585
30 CFR 75.223(b)/ Plots of unplanned roof falls, rib falls, and coal rock bursts				0	0	0
Total(s)				\$7,020	\$8,185	+\$ 1,165

Burden Costs: Costs for this submission increased by \$1,165 from the 2009 estimate (\$7,020 to \$8,185) due to an increase in the number of plans submitted.

16. For collections of information whose results will be published, outline plans for tabulation and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection of information, completion of report, publication dates, and other actions.

The results of this information collection will not be published.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be inappropriate.

There is no form associated with this collection; therefore this question does not apply for this collection.

18. Explain each exception to the certification statement identified in Item 19, "Certification for Paperwork Reduction Act Submissions," of OMB Form 83-I.

There are no certification exceptions identified with this information collection.

B. Collections of Information Employing Statistical Methods.

When Item 17 on the Form OMB 83-I is checked "Yes", the following documentation should be included in the Supporting Statement to the extent it applies to the methods proposed:

There is no statistical methodology involved in this collection.

Federal Mine Safety & Health Act of 1977 (the Mine Act)

ROOF SUPPORT

SEC. 302. (a) Each operator shall undertake to carry out on a continuing basis a program to improve the roof control system of each coal mine and the means and measures to accomplish such system. The roof and ribs of all active underground roadways, travelways, and working places shall be supported or otherwise controlled adequately to protect persons from falls of the roof or ribs. A roof control plan and revisions thereof suitable to the roof conditions and mining system of each coal mine and approved by the Secretary shall be adopted and set out in printed form within sixty days after the operative date of this title. The plan shall show the type of support and spacing approved by the Secretary. Such plan shall be reviewed periodically, at least every six months by the Secretary, taking into consideration any falls of roof or ribs or inadequacy of support of roof or ribs. No person shall proceed beyond the last permanent support unless adequate temporary support is provided or unless such temporary support is not required under the approved roof control plan and the absence of such support will not pose a hazard to the miners. A copy of the plan shall be furnished the Secretary or his authorized representative and shall be available to the miners and their representatives.

INSPECTIONS, INVESTIGATIONS, AND RECORDKEEPING

SEC. 103. (a) Authorized representatives of the Secretary or the Secretary of Health, Education, and Welfare shall make frequent inspections and investigations in coal or other mines each year for the purpose of (1) obtaining, utilizing, and disseminating information relating to health and safety conditions, the causes of accidents, and the causes of diseases and physical impairments originating in such mines, (2) gathering information with respect to mandatory health or safety standards, (3) determining whether an imminent danger exists, and (4) determining whether there is compliance with the mandatory health or safety standards or with any citation, order, or decision issued under this title or other requirements of this Act. In carrying out the requirements of this subsection, no advance notice of an inspection shall be provided to any person, except that in carrying out the requirements of clauses (1) and (2) of this subsection, the Secretary of Health, Education, and Welfare may give advance notice of inspections. In carrying out the requirements of clauses (3) and (4) of this subsection, the Secretary shall make inspections of each underground coal or other mine in its entirety at least four times a year, and of each surface coal or other mine in its entirety at least two times a year. The Secretary shall develop guidelines for additional inspections of mines based on criteria including, but not limited to, the hazards found in mines subject to this Act, and his experience under this Act and other health and safety laws. For the purpose of making any inspection or investigation under this Act, the Secretary, or the Secretary of Health, Education, and Welfare, with respect to fulfilling his responsibilities under this Act, or any authorized representative of the Secretary or the Secretary of Health, Education, and Welfare, shall have a right of entry to, upon, or

through any coal or other mine. ...

(h) In addition to such records as are specifically required by this Act, every operator of a coal or other mine shall establish and maintain such records, make such reports, and provide such information, as the Secretary or the Secretary of Health, Education, and Welfare may reasonably require from time to time to enable him to perform his functions under this Act. The Secretary or the Secretary of Health, Education, and Welfare is authorized to compile, analyze, and publish, either in summary or detailed form, such reports or information so obtained. Except to the extent otherwise specifically provided by this Act, all records, information, reports, findings, citations, notices, orders, or decisions required or issued pursuant to or under this Act may be published from time to time, may be released to any interested person, and shall be made available for public inspection.

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30 CFR PART 75 Subpart C – Roof Support

§ 75.215 Longwall mining systems.

For each longwall mining section, the roof control plan shall specify--

- (a) The methods that will be used to maintain a safe travelway out of the section through the tailgate side of the longwall; and
- (b) The procedures that will be followed if a ground failure prevents travel out of the section through the tailgate side of the longwall.

§ 75.220 Roof control plan.

(a)(1) Each mine operator shall develop and follow a roof control plan, approved by the District Manager, that is suitable to the prevailing geological conditions, and the mining system to be used at the mine. Additional measures shall be taken to protect persons if unusual hazards are encountered.

(2) The proposed roof control plan and any revisions to the plan shall be submitted, in writing, to the District Manager. When revisions to a roof control plan are proposed, only the revised pages need to be submitted unless otherwise specified by the District Manager.

(b)(1) The mine operator will be notified in writing of the approval or denial of approval of a proposed roof control plan or proposed revision.

(2) When approval of a proposed plan or revision is denied, the deficiencies of the plan or revision and recommended changes will be specified and the mine operator will be afforded an opportunity to discuss the deficiencies and changes with the District Manager.

(3) Before new support materials, devices or systems other than roof bolts and accessories, are used as the only means of roof support, the District Manager may require that their effectiveness be demonstrated by experimental installations.

(c) No proposed roof control plan or revision to a roof control plan shall be implemented before it is approved.

(d) Before implementing an approved revision to a roof control plan, all persons who are affected by the revision shall be instructed in its provisions.

(e) The approved roof control plan and any revisions shall be available to the miners and representative of miners at the mine.

§ 75.221 Roof control plan information.

(a) The following information shall be included in each roof control plan:

(1) The name and address of the company.

(2) The name, address, mine identification number and location of the mine.

(3) The name and title of the company official responsible for the plan.

(4) A typical columnar section of the mine strata which shall--

(a)(4)(i) Show the name and the thickness of the coalbed to be mined and any persistent partings;

(a)(4)(ii) Identify the type and show the thickness of each stratum up to and including the main roof above the coalbed and for distance of at least 10 feet below the coalbed; and

(a)(4)(iii) Indicate the maximum cover over the area to be mined.

(5) A description and drawings of the sequence of installation and spacing of supports for each method of mining used.

(6) When an ATRS system is used, the maximum distance that an ATRS system is to be set beyond the last row of permanent support.

(7) When tunnel liners or arches are to be used for roof support, specifications and installation procedures for the liners or arches.

(8) Drawings indicating the planned width of openings, size of pillars, method of pillar recovery, and the sequence of mining pillars.

(9) A list of all support materials required to be used in the roof, face and rib control system, including, if roof bolts are to be installed--

(a)(9)(i) The length, diameter, grade and type of anchorage unit to be used;

(a)(9)(ii) The drill hole size to be used; and

(a)(9)(iii) The installed torque or tension range for tensioned roof bolts.

(10) When mechanically anchored tensioned roof bolts are used, the intervals at which test holes will be drilled.

(11) A description of the method of protecting persons--

(a)(11)(i) From falling material at drift openings; and

(a)(11)(ii) When mining approaches within 150 feet of an outcrop.

(a)(12) A description of the roof and rib support necessary for the refuge alternatives.

(b) Each drawing submitted with a roof control plan shall contain a legend explaining all symbols used and shall specify the scale of the drawing which shall not be less than 5 feet to the inch or more than 20 feet to the inch.

(c) All roof control plan information, including drawings, shall be submitted on 8 1/2 by 11 inch paper, or paper folded to this size.

§ 75.222 Roof control plan-approval.

(a) This section sets forth the criteria that shall be considered on a mine-by-mine basis in the formulation and approval of roof control plans and revisions. Additional measures may be required in plans by the District Manager. Roof control plans that do not conform to the applicable criteria in this section may be approved by the District Manager, provided that effective control of the roof, face and ribs can be maintained.

(b) *Roof Bolting.* (1) Roof bolts should be installed on centers not exceeding 5 feet lengthwise and crosswise, except as specified in [§75.205](#).

(2) When tensioned roof bolts are used as a means of roof support, the torque or tension range should be capable of supporting roof bolt loads of at least 50 percent of either the yield point of the bolt or anchorage capacity of the strata, whichever is less.

(3) Any opening that is more than 20 feet wide should be supported by a combination of roof bolts and conventional supports.

(4) In any opening more than 20 feet wide--

(b)(4)(i) Posts should be installed to limit each roadway to 16 feet wide where straight and 18 feet wide where curved; and

(b)(4)(ii) A row of posts should be set for each 5 feet of space between the roadway posts and the ribs.

(5) Openings should not be more than 30 feet wide.

(c) *Installation of roof support using mining machines with integral roof bolters.* (1) Before an intersection or pillar split is started, roof bolts should be installed on at least 5-foot centers where the work is performed.

(2) Where the roof is supported by only two roof bolts crosswise, openings should not

be more than 16 feet wide.

(d) *Pillar recovery.* (1) During development, any dimension of a pillar should be at least 20 feet.

(2) Pillar splits and lifts should not be more than 20 feet wide.

(3) Breaker posts should be installed on not more than 4-foot centers.

(4) Roadside-radius (turn) posts, or equivalent support, should be installed on not more than 4-foot centers leading into each pillar split or lift.

(5) Before full pillar recovery is started in areas where roof bolts are used as the only means of roof support and openings are more than 16 feet wide, at least one row of posts should be installed to limit the roadway width to 16 feet. These posts should be--

(d)(5)(i) Extended from the entrance to the split through the intersection out by the pillar in which the split or lift is being made; and

(d)(5)(ii) Spaced on not more than 5-foot centers.

(e) *Unsupported openings at intersections.* Openings that create an intersection should be permanently supported or at least one row of temporary supports should be installed on not more than 5-foot centers across the opening before any other work or travel in the intersection.

(f) *ATRS systems in working sections where the mining height is below 30 inches.* In working sections where the mining height is below 30 inches, an ATRS system should be used to the extent practicable during the installation of roof bolts with roof bolting machines and continuous-mining machines with integral roof bolters.

(g) *Longwall mining systems.* (1) Systematic supplemental support should be installed throughout--

(g)(1)(i) The tailgate entry of the first longwall panel prior to any mining; and

(g)(1)(ii) In the proposed tailgate entry of each subsequent panel in advance of the frontal abutment stresses of the panel being mined.

(2) When a ground failure prevents travel out of the section through the tailgate side of the longwall section, the roof control plan should address--

(g)(2)(i) Notification of miners that the travelway is blocked;

(g)(2)(ii) Re-instruction of miners regarding escapeways and escape procedures in the

event of an emergency;

(g)(2)(iii) Re-instruction of miners on the availability and use of self-contained self-rescue devices;

(g)(2)(iv) Monitoring and evaluation of the air entering the longwall section;

(g)(2)(v) Location and effectiveness of the two-way communication systems; and

(g)(2)(vi) A means of transportation from the section to the main line.

(3) The plan provisions addressed by paragraph (g)(2) of this section should remain in effect until a travelway is reestablished on the tailgate side of a longwall section.

§ 75.223 Evaluation and revision of roof control plan.

(a) Revisions of the roof control plan shall be proposed by the operator--

(1) When conditions indicate that the plan is not suitable for controlling the roof, face, ribs, or coal or rock bursts; or

(2) When accident and injury experience at the mine indicates the plan is inadequate. The accident and injury experience at each mine shall be reviewed at least every six months.

(b) Each unplanned roof fall and rib fall and coal or rock burst that occurs in the active workings shall be plotted on a mine map if it--

(1) Is above the anchorage zone where roof bolts are used;

(2) Impairs ventilation;

(3) Impedes passage of persons;

(4) Causes miners to be withdrawn from the area affected; or

(5) Disrupts regular mining activities for more than one hour.

(c) The mine map on which roof falls are plotted shall be available at the mine site for inspection by authorized representatives of the Secretary and representatives of miners at the mine.

(d) The roof control plan for each mine shall be reviewed every six months by an authorized representative of the Secretary. This review shall take into consideration any

falls of the roof, face and ribs and the adequacy of the support systems used at the time.