

Coal Miners' Chest X-ray Program

Instructor's Copy

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Introduction

This document contains most of the materials needed to use the exercise. The main part of the document is the instructor's copy. It tells how to use the exercise, presents the objectives, the master answer sheet, the scoring key, and discussion notes to be used following the exercise. The last part of this document is three appendices. Appendix A is the exercise problem booklet. This booklet can be duplicated locally. The booklets are reusable. One is needed for every person in the classroom. Appendix B is the answer sheet. Copies of this answer sheet must have the invisible ink answers that appear in Appendix C printed on them.¹ Answer sheets are consumable. One is needed for each small group of 3 to 5 persons who work the exercise.

Exercise Summary

Read this section first. It determines if the exercise is appropriate for your classes. If you choose to use the exercise, examine the table of contents and review the remainder of this document.

Type: Invisible ink

Audience: Underground coal miners and surface workers at underground coal mines

Length: Eight questions (35 minutes for administration plus 35 for discussion)

Skills: Understand the purpose of the NIOSH chest x-ray surveillance program
Distinguish among common misconceptions about the program and factual statements that describe its purpose and operation
Evaluate the personal benefits that result from miners' participation in the program
Recall and understand the legal rights and responsibilities of the miners, the companies, NIOSH, MSHA, and the medical personnel involved in the program
As a coal miner, make informed decisions about whether or not to participate in the voluntary aspects of the program and weigh the possible consequences of this decision

Location: Underground coal mine section

Problem: You are a shuttle car driver in an underground coal mine. You are eating lunch with three of your buddies at the section dinner hole. Jeb, a younger miner, asks about the notice of the chest x-ray program he has seen on the company bulletin board. Jeb and the other miners begin talking to you about the program. Questions are raised about the purpose of the program, how it operates, what happens to the x-rays, and if it is important for miners to participate in the program. As these matters are discussed you are asked to give your advice and opinion about these matters. As you and your classmates complete the exercise and the discussion that follows, you will learn more about this program.

¹You can do this yourself if you have the proper equipment, or you may obtain copies of preprinted answer sheets from MSHA, National Mine Health & Safety Academy, Dept. of Instructional Materials, 1301 Airport Road, Beaver, WV 25813-9426 phone 304-256-3257, fax 304-256-3368 or email to lord-mary@msha.gov.

How to Use This Exercise

1. Look at the performance objectives. Decide if the exercise is relevant for your mine training class.
2. Work through the exercise with the developing pen and score your responses.
3. Read the master answer sheet for the exercise. Look at all the answers.
4. Read the "Instructor's Discussion Notes" for the exercise.
5. Become thoroughly familiar with the problem so that you can present it to your class without reading it.
6. When you present the exercise to the class:
 - Give each person an exercise booklet, and each group of 3 to 5 an answer sheet and a developing pen.
 - Demonstrate how to select and mark answers using the developing pen.
 - Go over the instructions for doing the exercise with the whole group.
 - Explain the problem making sure everyone understands the problem situation.
 - Have the class members work the exercise.
 - When the class members finish, have them figure up their score using the instructions at the end of the exercise.
 - When everyone has finished, discuss the exercise. Let class members discuss the merits of each answer. Add your own ideas.

Performance Objectives for Coal Miners' Chest X-ray

Objective number	Capability verb(s)	Description of required performance and conditions under which it is to occur
1. HK/LK ²	Recognize	Intended preventive health benefits and purposes of the NIOSH chest x-ray program
2. HK/LK	Discriminate	Among common misconceptions and factual statements about the program, its purpose, and its operation
3. HK	Recognize	That the program identifies health problems among miners who participate in the program
4. LK	Discriminate	Among the legal rights and obligations of miners, companies, medical, MSHA, and NIOSH personnel who participate in the program and its diagnostic and research activities.
5. HK	Evaluate	The personal benefits and risks involved for a miner who chooses to participate or not to participate in the voluntary aspects of the program
6. HD	Choose	Whether or not to personally participate in the voluntary aspects of the program

² Skill and knowledge domain abbreviations:

HK = health knowledge

LK = legal knowledge

HD = health decisions

Master Answer Sheet for Coal Miners' Chest X-ray

Use this answer sheet to mark your selections. Rub the developing pen gently and smoothly between the brackets. Don't scrub the pen or the message may blur. Be sure to color in the entire message once you have made a selection. Otherwise you may not get the information you need.

Question A (Select as MANY as you think are correct.)

1. [Correct! The law requires this. Experienced miners who move to different mines, or who are rehired are required to have another x-ray.]
2. [All miners are required to receive an x-ray 3 years after the initial new miner x-ray.]
3. [Correct! This right extends to all underground miners and surface workers at underground mines.]
4. [Participation every 4 or 5 years is voluntary.]
5. [This is a federal program operated by NIOSH and is separate from the black lung benefits program. The program is designed to identify miners' lung and chest problems.]

Question B (Select as MANY as you think are correct.)

6. [Correct! Once notified by MSHA, the company is required by law to transfer]
 [him to a less dusty job (1.0 mg/m^3 or less), if he is not already working in]
 [such a job.]
7. [Once he sent his letter to MSHA, the company was required by law to transfer]
 [Tony to a less dusty job (1.0 mg/m^3 or less), if he was not already working]
 [in such a job.]
8. [The chest x-ray and the letter from MSHA are part of Tony's permanent]
 [medical record with MSHA and NIOSH and can be used to file for benefits]
 [in the future.]
9. [The company cannot legally take this action. Tony also has 16 years seniority.]
10. [Correct! Category 2 CWP has more serious health effects. There is a high]
 [chance that the disease can become worse and life threatening lung]
 [diseases could develop.]
11. [Correct! Tony's right to transfer is voluntary. However, Tony's disease could]
 [get much worse if his old job has high dust and high silica levels.]
12. [He could not have transferred, but he could have used his letter to be]
 [monitored for dust by MSHA.]
13. [Correct! In this case he can request a less dusty job and his transfer is]
 [required by law.]
14. [The law says Tony's pay cannot be lower than the regular rate of pay he]
 [received just before transferring. However, he will not receive the pay]
 [increase of his old job, but of his new job.]
15. [Correct! The law requires Tony to give his social security number and have]
 [six 8-hour dust samples taken each year. The samples are taken to ensure]
 [that he does not have dust exposures greater than 1.0 mg/m^3 .]

Question C (Select as MANY as you think are correct.)

16. [Correct! This will provide protection from all dust sources during his work shift.]
17. [He should wear the respirator all the time. Respirable dust may be present even if he cannot see it.]
18. [Correct! This may prevent additional damage to his lungs.]
19. [Although these steps may help Sam to maintain his health, CWP damage cannot be reversed. Reducing dust exposure may lower the risk of his CWP getting worse.]

Question D (Select as MANY as you think are correct.)

20. [By law, the company must pay for the x-ray and its reading.]
21. [Only if he requests this in writing can his x-ray be given to the company or other persons.]
22. [Correct! If there is a problem other than CWP, this local physician will notify Jeb or his physician. His x-ray will be sent to NIOSH and reviewed by another NIOSH certified doctor.]
23. [Only Jeb and MSHA may be notified of the results of the examination. It is illegal for the results to be given to anyone else without Jeb's permission. He must designate in writing who will receive the report, including his physician.]
24. [Correct! If Jeb has no disease, he will be informed that he has no problems.]

Question E (Select as MANY as you think are correct.)

25. [Correct! The time necessary to develop CWP is several years, but other non-dust problems do occur and can be life threatening.]
26. [He could have cancer, an enlarged heart, TB, air in the chest cavity or another medical problem and still feel O.K.]
27. [The x-ray equipment and methods are regulated so exposure from x-rays is as small as possible. The amount of radiation Jeb receives from a chest x-ray is about 1/10 of the radiation he receives each year from natural sources such as air, food and water.]
28. [Correct! This x-ray can be taken within 6 months of the third anniversary of his beginning work as a miner.]

Question F (Choose only ONE unless you are told to "Try Again!")

- 29. [The results go to the union only if Jeb requests this in writing. Try again!]
- 30. [The results go to the company or the safety director only if Jeb requests
[this in writing. Try again!]
- 31. [The results go to his family doctor only if Jeb requests this in writing.
[Try again!]
- 32. [The results do NOT go to the MSHA District Office. Try again!]
- 33. [Correct! NIOSH may only notify MSHA and the miner (and when the miner
[requests in writing, his physician). MSHA then sends a letter to the miner
[notifying him of the results of the x-ray.]

Question G (Select as MANY as you think are correct.)

- 34. [Correct! A NIOSH certified doctor reads the x-ray a second time to make
[sure there is agreement with the first reading.]
- 35. [The law prohibits this unless the miner makes this request in writing.]
- 36. [Correct! Tens of thousands of x-rays are needed to estimate if the standard
[adequately protects miners' health.]
- 37. [Correct! When results are obtained from reading the x-rays the law requires
[MSHA to be notified by NIOSH.]
- 38. [A copy of the letter is sent only to the miner.]
- 39. [Correct! This type of information is needed to help NIOSH identify problems
[associated with certain types of jobs or certain types of coal mines.]
- 40. [Neither MSHA nor NIOSH are involved in black lung compensation.]
[]

Question H (Select as MANY as you think are correct.)

- 41. [NIOSH is not involved in the black lung benefits program, but the miner may]
[ask to use NIOSH x-ray results if he applies for black lung benefits.]
- 42. [Correct! Only miners taking their x-rays under the NIOSH program can]
[receive transfer letters from MSHA.]
- 43. [Correct! Physicians at local hospitals, where miners are examined as part of]
[program, have identified life threatening and serious chest problems of]
[miners who have participated in the program.]
- 44. [Correct! As required by law, a physician certified as a B-reader by NIOSH is]
[an expert in the interpretation of chest x-rays.]
- 45. [Only x-rays taken under the program at NIOSH certified medical]
[facilities can be submitted to NIOSH. These facilities are certified because]
[they use special methods to show dust and lung problems.]

Finding your score

Number of "Correct" answers you colored in = (1) _____

23 minus number of incorrect answers you colored in = (2) _____

Add blanks one and two to get your total score = (3) _____

Highest possible score = 45

Instructor's Discussion Notes for Coal Miners' Chest X-ray

Use the information presented here and on the master answer sheet, your own ideas and experience, and those of the miners in your class to discuss the exercise after it is completed. Group discussion can help strengthen knowledge, correct errors, and relate the exercise content to the experiences of the miners. The purpose of the exercise is to teach miners about the Coal Miner Health Surveillance Program. The discussion following the exercise can contribute to this goal and tailor the exercise content to the needs of the group you are training.

It is helpful to show overhead transparencies of the answers on the master answer sheet during the discussion, while the miners look at their problem booklets. This allows you to lead the group through the exercise and to discuss all the answers to each question. Most of the information about why particular answers are correct or incorrect is given on the master answer sheet.

The following notes provide additional information for you to discuss with your class. Read through and think about the notes before the class. Don't read the notes to the class members. This would be boring and ineffective. Rather, incorporate the ideas you find here with your own ideas and make these points at the appropriate place in the discussion of the exercise.

Question A - The correct answers are 1 and 3. New miners must have one x-ray taken within the first six months of underground employment and a second taken three years later. If the second x-ray shows evidence of coal worker's pneumoconiosis (CWP), then a third must be taken two years after the second x-ray. After these mandatory x-rays, the program becomes voluntary. Operators of underground coal mines must make x-ray examinations available to their employees during one six month period every five years.

Question B - The correct answers are 6, 10, 11, 13, and 15. If evidence of CWP is found on an x-ray, the miner has the right to transfer to a job where dust levels are at or below 1.0 mg/m³. Upon receiving word from MSHA of the right to transfer, the miner chooses whether or not to exercise that right. If transfer is requested, the miner's rate of pay may not be decreased below the pre-transfer level.

Question C - The correct answers are 16 and 18. It is important that miners realize that the damage caused by CWP can not be reversed but the progress of the disease can be stopped. Miners with CWP can prevent additional lung damage by wearing respirators any time they are in dusty areas and by stopping smoking.

Question D - The correct answers are 22 and 24. X-rays taken for this program must be paid for by the coal mine operator and must be provided at a NIOSH approved facility at times and places convenient for the miners. The x-rays are first read on-site and are then sent to Morgantown, WV for a second reading. If the first and second readers do not agree, a third person will read the x-ray. It is illegal for results to be sent to the coal operator unless the miner requests this in writing.

Question E - The correct answers are 25 and 28. This x-ray can be used as the required second x-ray. It also provides an opportunity for non-dust related health problems to be identified.

Question F - The correct answer is 33. Results of all xrays will be sent to MSHA in Arlington, VA and to the miner. If the miner requests, the results will also be sent to his or her personal physician.

Question G - The correct answers are 34, 36, 37, and 39. The National Institute for Occupational Safety and Health (NIOSH) conducts studies of the health of coal miners. X-rays taken for this program provide data for research on the effects of coal dust on miners during their careers. For this reason, participating in the x-ray program assists NIOSH with finding out more about how to protect the health of coal miners.

Question H - The correct answers are 42, 43, and 44. Miners are required by law to have at least 2 xray examinations under this program. After that, they may choose to take advantage of the opportunity to have additional x-rays taken every five years. The intent of this exercise is to provide information about the program so that miners can make informed decisions about their participation.

References

The Code of Federal Regulations. Title 42, Subpart 37.

The Federal Coal Mine Health and Safety Act of 1969. (1969) Public Law 91-173, section 203.

The Federal Mine Safety and Health Act of 1977. (1977) 30 USC 801, et seq.

Federal Register. (1978). Vol. 43, No. 148, Tuesday, August 1, 1978.

McAteer, J. D. (1981) Miner's Manual, Crossroads Press, Washington, DC, pp. 122-127.

Mallett, L., Frank, A., and Garrity, T. (1986) Utilization of the Working Miner X-ray Program: Behavioral Aspects (BRASH R86-01). Behavioral Aspects of Safety and Health Working Group, The University of Kentucky, Lexington, Kentucky.

Scoring Key for Coal Miners' Chest X-ray

The correct answers are marked with an asterisk.³

<u>Question</u>	<u>Answer Number</u>						
A	1*	2	3*	4	5		
B	6*	7	8	9	10*	11*	12
	13*	14	15*				
C	16*	17	18*	19			
D	20	21	22*	23	24*		
E	25*	26	27	28*			
F	29	30	31	32	33*		
G	34*	35	36*	37*	38	39*	40
H	41	42*	43*	44*	45		

³ This page may be duplicated and used as an overhead transparency.

Appendix A: Problem Booklet

Duplicate this copy of the problem booklet for use in your classes. **Booklets should be printed on only one side of the paper.** Each person in your class should have a problem booklet while they are working the exercise. The problem booklets are reusable.

You may obtain a copy of the problem booklet from MSHA, National Mine Health & Safety Academy, Dept. of Instructional Materials, 1301 Airport Road, Beaver, WV 25813-9426 phone 304-256-3257, fax 304-256-3368 or email to lord-mary@msha.gov.

Coal Miners' Chest X-ray Program

Problem Booklet

Instructions

Read the problem situation described on the next page. Next, answer each of the questions. Do them one at a time. Don't jump ahead, but you may look back to earlier questions and answers. Some questions ask you to select **all** of the answers that you think are correct. Other questions ask you to select only **one** answer unless you are told to "Try again!" Follow the directions for each question.

After you have selected a choice to a question, look up its number on the answer sheet. Select your answer(s) to each question by rubbing the developing pen between the brackets on the answer sheet. A hidden message will appear and tell you if you are right. When you have finished, you will learn how to score your performance.

Background

You, Jeb, Tony and Sam work at Wheeler Creek Coal Mine on 3 Left Section.

Wheeler Creek's miners are represented by a union.

You are a shuttle car driver.

Jeb has worked as a beltman for 2 1/2 years. He is 25 years old. This is his first job as an underground miner.

Tony is a supplyman, 34 years old, married with three children. He has worked 16 years at this mine. He worked as a bolter operator for 12 years. Tony has been a non-smoker for the last four years.

Sam is the continuous miner operator, 53 years old, married, with two children and one grandchild. He smokes 2 packs a day. He has 32 years experience as an underground miner with 15 years as a continuous miner operator.

The company bulletin board near the bathhouse displays a federal form announcing the periodic chest x-ray examinations for this mine. The exam period begins tomorrow and ends in 180 days.

The examinations will be held at Memorial Hospital, 15 miles from the mine, and Smith Valley Hospital, 35 miles away.

Problem

You, Jeb, Tony and Sam are eating lunch at the dinner hole. Jeb asks about the x-ray program. Turn to question A.

Question A

Jeb asks you, "What is this chest x-ray program?" What should you tell him? (Select as MANY as you think are correct.)

1. All miners new to the industry are required to have a chest x-ray within the first 6 months of beginning work in an underground coal mine.
2. The program allows all underground miners the right to choose to have a free x-ray 3 years after their initial employment x-ray.
3. This program gives all underground miners the right to have a free x-ray every 4 to 5 years.
4. This program says all miners MUST have an x-ray every 4 to 5 years.
5. This is a program run by the company to identify workers with black lung problems, so miners may be denied their benefits.

When you have made your selection(s), do the next question.

Question B

Jeb asks, "Have any of you guys ever taken the exam?" Tony says, "I did 4 years ago. I got a letter that said my x-ray showed Category 1 CWP (Coal Workers Pneumoconiosis). I transferred to a less dusty job." What is true about Tony's transfer? (Select as MANY as you think are correct.)

6. To obtain his transfer, Tony had to complete and send an option to transfer form to MSHA officials.
7. To obtain a transfer, Tony had to have known someone and arranged on his own to find a less dusty job.
8. When Tony used his letter, he may have jeopardized his black lung benefits.
9. When Tony chose to use his letter, he risked being laid off or fired so the company could avoid paying compensation in the future.
10. By transferring to a less dusty job, Tony may have reduced his risk of a worse case of CWP.
11. Tony could have chosen to have kept his old job as a bolter operator and not used the letter.
12. If Tony's old job had dust levels at or below 1.0 mg/m³, he could not have used his transfer letter.
13. For Tony to have transferred to a new job, dust levels on his old job must have exceeded 1.0 mg/m³.
14. After the transfer, Tony received the pay for the new job he transferred to.
15. After his transfer, Tony had to carry a dust sampler 6 times per year.

When you have made your selection(s), do the next question.

Question C

Sam says he also had a chest x-ray 4 years ago, and that he also got a transfer letter for category 1 CWP. He says he decided not to transfer because he was going to retire soon and was afraid that he might not get his black lung benefits. What are some things Sam could do to reduce risk from CWP and other related diseases. (Select as MANY as you think are correct.)

16. Wear his NIOSH-MSHA approved dust respirator when he is working on the section.
17. Wear his NIOSH-MSHA approved dust respirator when he is cutting coal and when the air looks dusty.
18. Quit or reduce his smoking.
19. Reverse his CWP by taking multiple vitamins and eating a healthy diet.

When you have made your selection(s), do the next question.

Question D

Once Jeb (or any other miner) decides to have a chest x-ray as part of the NIOSH coal miner x-ray surveillance program, what happens? (Select as MANY as you think are correct.)

- 20. He must pay for the x-ray and the doctor to read it.
- 21. His x-ray will be given to the company.
- 22. His x-ray will be read by a NIOSH certified physician at the hospital where he was examined.
- 23. If Jeb has any category of CWP, his company, the union and his family physician will be notified.
- 24. Jeb will receive a letter telling him of the results of his examination.

When you have made your selection(s), do the next question.

Question E

Jeb asks if it is important for him to get an x-ray. (Until now Jeb didn't realize he had taken the initial NIOSH chest x-ray, thinking the x-ray was just part of his pre-employment physical.) After all, he has only worked 2 1/2 years in the mine. He said he doesn't think he would have any disease. Should he get an x-ray? (Select as MANY as you think are correct.)

- 25. Yes. Young miners with 2 1/2 years experience can have non-CWP related chest and lung problems.
- 26. He doesn't need an x-ray. He feels good. He appears to be healthy.
- 27. No. This x-ray should be avoided because it increases the risk of cancer.
- 28. Yes. This x-ray can serve as the required third year x-ray.

When you have made your selection(s), do the next question.

Question F

After he talks with you, Jeb decides to get the x-ray. He now knows that the results will be returned to him. Where else do the results go? (Choose only ONE unless you are told to "Try again!")

- 29. To his union. They need the results to support him if he later files for compensation.
- 30. To the company and the safety director.
- 31. To his family doctor.
- 32. To the MSHA District Office.
- 33. To MSHA Headquarters, Arlington, Virginia.

Question G

After the local NIOSH certified doctor reads the chest x-rays of Tony's, Jeb's and other miners who participate in the program, he sends them to the NIOSH Morgantown office. Why? (Select as MANY as you think are correct.)

- 34. Because the regulations require a second reading of the x-ray.
- 35. So that NIOSH can inform the miner's company and union of the results.
- 36. NIOSH studies the results to determine if the current dust standard (2.0 mg/m³) adequately protects the health of the miners.
- 37. So that NIOSH will notify the national MSHA office in Arlington, Virginia of all miners' x-ray results.
- 38. If a miner is found to have CWP, MSHA sends a copy of his transfer letter to the regional black lung compensation office.
- 39. So that NIOSH may follow the respiratory health of miners throughout their working lifetime as a coal miner.
- 40. So that MSHA or NIOSH can send a letter to the miner saying that he is eligible for black lung compensation, if this is necessary.

When you have made your selection(s), do the next question.

Question H

Why should Tony and other miners take x-rays under the NIOSH program? (Select as MANY as you think are correct.)

- 41. It is necessary to obtain black lung benefits.
- 42. Miners cannot receive transfer letters unless they take the x-ray under the NIOSH program.
- 43. A miner may have some serious health problem that a chest x-ray can identify.
- 44. A physician certified by NIOSH as a B-reader can read x-rays for dust diseases of the chest.
- 45. X-rays taken by a family doctor in any hospital can be accepted by and processed by NIOSH.

When you have made your selection(s), do the next question.

Jeb had his x-ray. He was pleased to learn he had no serious problem.

Sam chose to attend a quit-smoking class and was able to reduce his smoking by 1 pack a day. He felt this was a good start. He also requested a NIOSH approved dust respirator. He now wears it every day, all shift except when he is eating.

Tony still takes care of himself by wearing a respirator when it is necessary for him to go back into the dust, and by continuing not to smoke.

End of Problem

Scoring your performance

1. Count the total number of responses you colored in that were marked "correct". Write this number in the first blank on the answer sheet.
2. Count the total number of "incorrect" responses you colored in. Subtract this number from 23. Write the difference in the second blank on the answer sheet.
3. The best score is 45. The worst score is 0.

Appendix B: Answer Sheet Blanks

These are the answer sheet blanks. Copies of these blank answer sheets may be duplicated in the normal fashion. However, the answers that are found within the brackets must be printed on these blank answer sheets in invisible ink. These answers are found in Appendix C. If you have the capability to print invisible ink, make copies of the blank answer sheets. Make a master of the answers that appear in Appendix C. Then print the invisible ink on the blank answer sheets, being careful to make sure all pages print and that the appropriate answers line up with the appropriate blanks. The Master Answer Sheet shows all the answers in their proper places.

Most companies and trainers prefer to obtain copies of the preprinted answer sheets from MSHA, National Mine Health & Safety Academy, Dept. of Instructional Materials, 1301 Airport Road, Beaver, WV 25813-9426 phone 304-256-3257, fax 304-256-3368 or email to lord-mary@msha.gov.

The exercise is designed to be used in small groups. You will need one answer sheet for each group of 3 to 5 persons in your class. The answer sheets are consumable. You will need a new set for each class.

A developing pen is also needed by each person who marks an answer sheet.

Answer Sheet for Coal Miners' Chest X-ray

Use this answer sheet to mark your selections. Rub the developing pen gently and smoothly between the brackets. Don't scrub the pen or the message may blur. Be sure to color in the entire message once you have made a selection. Otherwise you may not get the information you need.

Question A (Select as MANY as you think are correct.)

- 1. []
[]
- 2. []
[]
- 3. []
[]
- 4. []
- 5. []
[]
[]

Question B (Select as MANY as you think are correct.)

- 6. []
[]
[]
- 7. []
[]
[]
- 8. []
[]
[]
- 9. []
[]
- 10. []
[]
[]
- 11. []
[]
- 12. []
[]
- 13. []
[]
- 14. []
[]
[]
- 15. []
[]
[]
[]

Question C (Select as MANY as you think are correct.)

- 16. []
[]
- 17. []
[]
- 18. []
[]
- 19. []
[]
[]

Question D (Select as MANY as you think are correct.)

- 20. []
[]
- 21. []
[]
- 22. []
[]
[]
- 23. []
[]
[]
[]
- 24. []
[]

Question E (Select as MANY as you think are correct.)

25. []
[]
[]

26. []
[]

27. []
[]
[]
[]

28. []
[]

Question F (Choose only ONE unless you are told to "Try again!")

29. []
[]

30. []
[]
[]

31. []
[]

32. []

33. []
[]
[]

Question G (Select as MANY as you think are correct.)

34. []
[]

35. []

36. []
[]

37. []
[]

38. []

39. []
[]
[]

40. []
[]

Question H (Select as MANY as you think are correct.)

41. []
[]

42. []
[]

43. []
[]
[]

44. []
[]

45. []
[]
[]
[]

Finding your score

Number of "Correct" answers you colored in = (1) _____

23 minus number of incorrect answers you colored in = (2) _____

Add blanks one and two to get your total score = (3) _____

Highest possible score = 45

Appendix C: Invisible ink Answers

These pages contain the answers that must be printed in the blanks of the answer sheet in Appendix B. These answers are spaced and sequenced correctly so that they exactly match up with the appropriate blanks on the answer sheet blank.

Once the answers have been printed in the answer sheet blanks, the developing pen reveals the formerly invisible printed message.

You may obtain preprinted answer sheets or you may prepare your own copies. To learn more about these options, and to determine how many answer sheets and developing pens you will need, see the introductory section of the Instructor's Copy.

Correct! The law requires this. Experienced miners who move to different mines, or who are rehired are required to have another x-ray.

All miners are required to receive an x-ray 3 years after the initial new miner x-ray.

Correct! This right extends to all underground miners and surface workers at underground mines.

Participation every 4 or 5 years is voluntary.

This is a federal program operated by NIOSH and is separate from the black lung benefits program. The program is designed to identify miners' lung and chest problems.

Correct! Once notified by MSHA, the company is required by law to transfer him to a less dusty job (1.0 mg/m^3 or less), if he is not already working in such a job.

Once he sent his letter to MSHA, the company was required by law to transfer Tony to a less dusty job (1.0 mg/m^3 or less), if he was not already working in such a job.

The chest x-ray and the letter from MSHA are part of Tony's permanent medical record with MSHA and NIOSH and can be used to file for benefits in the future.

The company cannot legally take this action. Tony also has 16 years seniority.

Correct! Category 2 CWP has more serious health effects. There is a high chance that the disease can become worse and life threatening lung diseases could develop.

Correct! Tony's right to transfer is voluntary. However, Tony's disease could get much worse if his old job has high dust and high silica levels.

He could not have transferred, but he could have used his letter to be monitored for dust by MSHA.

Correct! In this case he can request a less dusty job and his transfer is required by law.

The law says Tony's pay cannot be lower than the regular rate of pay he received just before transferring. However, he will not receive the pay increase of his old job, but of his new job.

Correct! The law requires Tony to give his social security number and have six 8-hour dust samples taken each year. The samples are taken to ensure that he does not have dust exposures greater than 1.0 mg/m^3 .

Correct! This will provide protection from all dust sources during his work shift.

He should wear the respirator all the time. Respirable dust may be present even if he cannot see it.

Correct! This may prevent additional damage to his lungs.

Although these steps may help Sam to maintain his health, CWP damage cannot be reversed. Reducing dust exposure may lower the risk of his CWP getting worse.

By law, the company must pay for the x-ray and its reading.

Only if he requests this in writing can his x-ray be given to the company or other persons.

Correct! If there is a problem other than CWP, this local physician will notify Jeb or his physician. His x-ray will be sent to NIOSH and reviewed by another NIOSH certified doctor.

Only Jeb and MSHA may be notified of the results of the examination. It is illegal for the results to be given to anyone else without Jeb's permission. He must designate in writing who will receive the report, including his physician.

Correct! If Jeb has no disease, he will be informed that he has no problems.

Correct! The time necessary to develop CWP is several years, but other non-dust problems do occur and can be life threatening.

He could have cancer, an enlarged heart, TB, air in the chest cavity or another medical problem and still feel O.K.

The x-ray equipment and methods are regulated so exposure from x-rays is as small as possible. The amount of radiation Jeb receives from a chest x-ray is about 1/10 of the radiation he receives each year from natural sources such as air, food and water.

Correct! This x-ray can be taken within 6 months of the third anniversary of his beginning work as a miner.

The results go to the union only if Jeb requests this in writing. Try again!

The results go to the company or the safety director only if Jeb requests this in writing. Try again!

The results go to his family doctor only if Jeb requests this in writing. Try again!

The results do NOT go to the MSHA District Office. Try again!

Correct! NIOSH may only notify MSHA and the miner (and when the miner requests in writing, his physician). MSHA then sends a letter to the miner notifying him of the results of the x-ray.

Correct! A NIOSH certified doctor reads the x-ray a second time to make sure there is agreement with the first reading.

The law prohibits this unless the miner makes this request in writing.

Correct! Tens of thousands of x-rays are needed to estimate if the standard adequately protects miners' health.

Correct! When results are obtained from reading the x-rays the law requires MSHA to be notified by NIOSH.

A copy of the letter is sent only to the miner.

Correct! This type of information is needed to help NIOSH identify problems associated with certain types of jobs or certain types of coal mines.

Neither MSHA nor NIOSH are involved in black lung compensation.

NIOSH is not involved in the black lung benefits program, but the miner may ask to use NIOSH x-ray results if he applies for black lung benefits.

Correct! Only miners taking their x-rays under the NIOSH program can receive transfer letters from MSHA.

Correct! Physicians at local hospitals, where miners are examined as part of the program, have identified life threatening and serious chest problems of miners who have participated in the program.

Correct! As required by law, a physician certified as a B-reader by NIOSH is an expert in the interpretation of chest x-rays.

Only x-rays taken under the program at NIOSH certified medical facilities can be submitted to NIOSH. These facilities are certified because they use special methods to show dust and lung problems.