

Raggs & Curly Guarding Exercise

Problem Booklet

Instructions

Read the problem situation described on the next page. Then answer each of the 8 questions. Do them one at a time. Some questions will ask you to look at one or more 3-D slides. Look at the appropriate slide or slides, then continue on with the exercise. Don't jump ahead, but look only at the questions and slides to which you are directed. However, you may look back to earlier questions and answers at any time. 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 slowly and gently rubbing the special 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.

The Situation

You, Earl E. Raggs, are the chief mechanic at the main mine complex of the AB Coal Company. You have been called to the Jake's Run Surface Mine. The mine supplies coal directly to rail cars by means of a 48" mobile conveyor. The superintendent explains that during a recent insurance company inspection, some potentially dangerous situations concerning improper guarding practices were noticed. He instructs you to conduct a survey and document some of the guarding problems you observe around the mobile conveyor, and make recommendations for correcting these problems. Your recommendations will be part of a planned company wide guarding policy. He assigns Noah "Curly" Hair, who was just recently reassigned as a mechanic's helper at this operation, to accompany you. The superintendent stresses the fact that Curly is not too familiar with safe guarding practices and asks that you take this opportunity to share your knowledge concerning guarding. You and Curly are to report back to the superintendent with your findings. Turn to Question A.

Question A

You and Curly, take a camera and notebook, and begin to document the status of the guards located at the mobile conveyor area. Look at Slide 1. You are looking for unsafe guarding practices and related problems. What should you point out to Curly? (Select as MANY as you think are correct.)

1. A dirty warning sign.
2. A missing guard.
3. Altered guard.
4. Coal spillage.
5. A missing guard around the electrical box.

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

Question B

Continuing your survey, you and Curly go to the rear of the bin. Look at Slide 2. What hazards would you note and point out to Curly at this location? (Select as MANY as you think are correct.)

6. The salamander is located too close to the fuel depot.
7. There are holes in the guards.
8. The guard is not extended far enough to enclose all pinch points.
9. Warning signs are inadequate.
10. Coal has built up here.
11. Guard screens are not aligned .

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

Question C

The next place you stop is a conveyor dump point. Look at Slide 3. Other than repairing the holes in the guards and cleaning up obvious spillage, what corrective measures should you recommend to the superintendent for this area? (Select as MANY as you think are correct.)

12. Replace the missing triangular guard on the near side.
13. Display warning signs.
14. Investigate the cause of the large coal chunks underneath the equipment.

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

Question D

You walk around the dump point to look at the other side. This is what you see. Look at Slide 4. What corrective measures should you and Curly recommend to the superintendent for this area? (Select as MANY as you think are correct.)

- 15. Display warning signs.
- 16. Repair the holes in the guard.
- 17. Investigate the cause of the large coal chunks underneath the equipment.

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

Question E

You and Curly travel to the mobile conveyor. Look at Slide 5. You ask Curly to assess this piece of equipment. What positive guarding practices would you expect Curly to note? (Select as MANY as you think are correct.)

- 18. Effective use of multiple guarding materials.
- 19. Extended grease fittings.
- 20. Handrail and toe boards.
- 21. Walkway is clear of all slip and trip hazards.
- 22. Guarding for machinery parts which are out of reach.

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

Question F

Curly mentions to you that he saw another example of guarding on a piece of mobile equipment. Look at Slide 6. This is a refurbished piece of equipment which arrived from the factory not too long ago. After new tires are put on it, what guarding changes, if any, do you think should be made before the equipment is put into use? (Select as MANY as you think are correct.)

- 23. No changes should be made because this is the way it came from the factory.
- 24. Extend the height of the guard around the engine compartment.
- 25. Paint the engine compartment guards a different color than the equipment.
- 26. Extend the guarding down to cover the top of the tire.
- 27. Install warning signs and reflective materials on the step.

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

Question G

You decide to conclude this initial phase of the survey by asking Curly to survey his work area near where the compressed gas is stored. Look at Slide #7. You see quite a few potential hazards at this site and decide to have Curly point them out to you. What should Curly point out as potential hazards? (Select as MANY as you think are correct.)

- 28. The handrail is lying off to the side and not attached to the steps.
- 29. Combustible materials are stored too close to the compressed gas.
- 30. There are no signs indicating compressed gas storage.
- 31. Batteries are not stored properly and are placed too near the compressed gas.
- 32. Compressed gases are not secured in place.
- 33. Compressed gases should be stored in metal sheds.
- 34. Housekeeping is poor in this area.
- 35. There are no fire extinguishers here.

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

Question H

You meet with the superintendent to brief him on your findings. Besides the condition of the guards themselves, what are some other safety practices that you might recommend to support safe work procedures around moving parts? (Select as MANY as you think are correct.)

36. Warning signs placed in close proximity to moving parts.
37. Materials used for guarding should be substantial and heavy.
38. Written procedures such as SOP's and JSA's that address specific tasks.
39. A maintenance and inspection program specifically aimed at guarding.
40. Removal of a guard only after a piece of equipment has been de-energized and locked and tagged out.
41. Guards should be designed and modified to protect maintenance personnel as well as making their job easier.

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 9. Write the difference in the second blank on the answer sheet.
3. The best score is 41. The worst score is 0.