CORNER BROOK REGIONAL HIGH

Mining Workbook

Canadian Geography

Name: _____
Teacher:_____

February

Outcomes covered in this workbook:
Students will describe the spatial distribution of categories of mineral resources.
Students will identify the main types of mining operations.
Students will reflect upon issues associated with mining activity. (See pages 56 – 58 in c.g.)

Complete the following questions on loose-leaf. Use Chapters 10 & 11, plus the notes given in class.

1. Write a definition for the term mineral? (4.5.1)

2.
    a. List ten ways in which the products of mining contribute to your life.
    b. Describe how Canadian society would be different if we did not have the products of the mining industry.

3. Refer to Figure 10.2 on page 188.
    a. Describe the employment trend in most areas of mining from 1961 to 1980 and from 1981 to 1992.
    b. What two factors account for the trend from 1981 to 1992?
    c. Which sector of the mining industry did not follow the trend?

4. What are the differences between metallic minerals and non-metallic minerals? (4.5.2)

5.
    a. Copy the chart in Figure 10.6 on page 192 into the space below. Fill in the information for metallic, fuel, and industrial minerals using figure 10.5 and Figures 11.12 and 11.23 on pages 218 and 228.
    b. In what physiographic regions are metallic minerals most commonly found? Explain why?
    c. In what physiographic regions are industrial minerals most commonly found? Explain why?
    d. In what physiographic region are fuel minerals most commonly found? Explain why? (4.5.3) & (4.5.4)

6. Define the following terms: (4.5.4) & (4.6.5)
    a. Convectional Oilfields
    b. Unconventional Oilfields
    c. Potential Reserves
    d. Actual Reserves

7. Draw and describe the 4 types of oil traps in Canada? (4.5.4) & (4.6.5)

8.
    a. Describe the differences in the shape and depth of the ore bodies in Figure 10.8.
    b. How do the characteristics of each ore body make it suitable for each type of mining? (4. 6.4)

9.
    a. Strip mining is the least expensive method of mining while underground mining is the most expensive. Explain why this is the case.

b. In order for an underground mine to be profitable, the mineral deposits must be larger and richer than those in open-pit or strip mines. Explain why. (4.6.4)

10. Rank the three mining methods from least destructive to the environment to the most destructive. Give reasons for your ranking.

11. Which type of mining method is the most dangerous? Explain your answer. (4.7.1)

12. Using the systems model. Describe the possible inputs, process and outputs for an open-pit mine. (4.6.2)

13. Using the systems model. Describe the possible inputs, mining processes, and outputs for an underground mine. (4.6.3)

14. Read the description of life in an underground mine on page 196 and study figure 10.9 on page 195.

    a. Imagine you are on a tour of this mine. Write a brief account of your feelings as you experience this underground world.
    b. Would you like to work in an underground mine? Explain your answer.

15. Read pages 201 – 206 in your text book. (4.7.4)

    a. Describe the cycle of a boom-and-bust economy.
    b. Why do single-industry towns experience this type of economy?
    c. If single-industry towns have such uncertain economic futures, why would people still settle there?
    d. Refer to figure 10.15.
        i. Construct a multiple line graph showing changes in the number of mine employees and in the population of Elliot late from 1957 to 1955. Mark the number of people in intervals of 1000 on the vertical axis of the graph and the years at two-year intervals on the horizontal axis. Plot the population of Elliot Lake. Now, using another colour plot the number of works at the mine.
        ii. Describe and explain the pattern of boom-and bust cycles your graph reveals.
    e. Define economic diversification.
    f. Why is economic diversification one solution to the problem of boom-and-bust cycles in single-industry towns?
    g. Why were the types of industries attracted to Sudbury ideal for overcoming boom-and-bust cycles?

16. A mining company has just decided to open a mine near your community. Assume each of the following roles and pose a question you would ask company officials at a public meeting (4.7.5):
    a. an environmentalist

    b. an unemployed worker

    c. a road contractor

Westray Mine – Case Study (4.7.3)

From Wikipedia, the free encyclopedia

Background

Following the closure of the last working mine in the 1970s, Pictou County's hopes for a mining renaissance were revived with the announcement of a proposed mine in the region in the late 1980s. The timing was perfect, politically, since the region had elected a fledgling leader of the federal opposition, Brian Mulroney, in a 1983 by-election in Central Nova. Following the election of a federal Conservative-led government, Elmer MacKay became a Tory political heavyweight in the riding. Provincially, the area was also home to Conservative premier Donald Cameron. Money was made available to Toronto company Curragh Resources for establishing a mine, as well as building an extension to a railway line and custom-built railcars (to be constructed in nearby Trenton). The mine would feed coal to a local Nova Scotia Power Company generating station which was a provincial Crown corporation at the time.

Mine opens

On September 11, 1991 the mine was opened to great local fanfare but immediately problems began to surface. Accusations were made by mine workers of company cutbacks in safety training and equipment and of negligent and outright criminal behaviour toward safety inspections. Miners complained about working in deep coal dust and on March 9, 1992 only 2 months before the disaster, a local union official stated in a safety report:

> "I strongly feel there will be someone killed in the near future."

The disaster

On Saturday, May 9, 1992, a methane gas, and subsequent coal dust explosion at 5:18 a.m. ADT killed 26 miners. It was Canada's worst mining disaster since 1958, when a cave-in at another Nova Scotia coal mine, in Springhill, claimed the lives of 75 miners.

In the wake of the explosion, Canadian and international media coverage descended upon the tiny hamlet of Plymouth and the nearby towns of New Glasgow, Stellarton, Westville and

Trenton. Coverage gripped Canadians for several days as teams of draegerman (mine rescuers) searched the debris-strewn depths of the mine for survivors.

Over the next several days, media reported non-stop from a community centre located across the street from the mine while rescue teams encountered extremely hazardous conditions underground. Westray officials did not cooperate well with the media, which affected the release of information.

The bodies of 15 miners were discovered and afterward the search and rescue was changed to a search and recovery operation. After underground conditions worsened, the decision was made to abandon recovery efforts, entombing the bodies of 11 miners at the depths of the mine. Several days later RCMP investigators re-entered the mine with a draeger team to gather evidence for criminal prosecution but they did not enter the "southwest main" shaft where the remaining miners' bodies were located, again due to hazardous conditions.

117 miners who were not working on shift at the time were given 12-weeks severance pay.

Trial

The company was charged with 52 non-criminal counts of operating an unsafe mine under the *Occupational Health and Safety Act*. In 1993 the non-criminal charges were stayed by Crown prosecutors, who expressed concern they might jeopardize future criminal charges.[1]

Two of the mine's managers, Gerald Phillips and Roger Parry, were charged with manslaughter, but the charges were stayed by the trial judge on the grounds that prosecutors had failed to disclose key evidence to the defence. The stay was appealed to the Nova Scotia Court of Appeal which ordered a new trial. The order for a new trial was upheld by the Supreme Court of Canada, which criticized the trial judge for having called the director of prosecutions during the trial to complain about the manner in which prosecutors were conducting the case.

After the Supreme Court ordered a new trial, prosecutors decided not to pursue the charges because they determined there was not enough evidence to secure convictions.[2]

Inquiry

The Nova Scotia provincial government conducted a Royal Commission of Inquiry into the Westray Mine and the safety issues resulting from the explosion. The report submitted in 1998 recommended a sweeping overhaul of all provincial labour and mining laws which were mostly acted upon..

Legislation

In late 2003, the federal government enacted Bill C-45 in direct response to the Westray Mine disaster. The bill provided a new regime outlining the framework of corporate liability in Canada. It also provided a new punishment scheme to allow the Courts not simply to fine corporations, but also to put them on probation to ensure that the offences were not repeated.

However, Bill C-45 was largely seen as an exercise of political posturing by the federal government, as it is doubtful that the new provisions would have had any effect on the legal implications of the disaster. Because of the division of powers in the Canadian Constitution, the province is the only government that would be able to enact any real change.

Westray Memorial

Memorial

Today a memorial sits in a park in nearby New Glasgow at the approximate location above ground where the remaining 11 miners are trapped. The memorial will always be there in remembrance of those who died there: The memorial's central monument, engraved with the names and ages of the twenty-six men who lost their lives in the disaster states, "Their light shall always shine."

The names and ages of the 26 miners who were killed in the Westray coal mine disaster at 5:20 am on 9 May 1992[3]: John Thomas Bates, 56, Larry Arthur Bell, 25, Bennie Joseph Benoit, 42, Wayne Michael Conway, 38, Ferris Todd Dewan, 35, Adonis J. Dollimont, 36, Robert Steven Doyle, 22, Remi Joseph Drolet, 38, Roy Edward Feltmate, 33, Charles Robert Fraser, 29, Myles Daniel Gillis, 32, John Philip Halloran, 33, Randolph Brian House, 27, Trevor Martin Jahn, 36, Laurence Elwyn James, 34, Eugene W. Johnson, 33, Stephen Paul Lilley, 40, Michael Frederick MacKay, 38, Angus Joseph MacNeil, 39, Glenn David Martin, 35, Harry A. McCallum, 41, Eric Earl McIsaac, 38, George S. James Munroe, 38, Danny James Poplar, 39, Romeo Andrew Short, 35, Peter Francis Vickers, 38.

Mine site razed

The former mine site was razed in 1998 with the most visible reminder of the tragedy, the two 15-storey blue concrete coal storage silos, being imploded on November 27, 1998. The damaged mine shaft had been permanently sealed following the decision to abort further recovery attempts in May 1992 and after investigations were completed.

1. What was the cause of the disaster?

2. What was the disasters impact in terms of lives lost, injuries, and damage to property?

3. How did the company respond to the incident

4. How did the community respond?

5. What was the government's involvement before and after the incident?

6. Assume the role of the president of a new mining firm that wants to restart the mine. Develop a list of physical, economic, and social conditions you will have to consider before starting to mine the ore? (4.7.2)