

- Justifying conclusions
- Identifying bias

Ada Lockridge and the Chemical Valley

Issue

Why is knowledge about chemicals and chemical reactions important to everyone in society?

Background Information

Chemicals play an important role in business in Ontario. Ontario's chemical industry directly employs over 50 000 people, who created and sold products worth over \$22 billion in 2008. In addition, almost two dozen manufacturing sectors depend on the chemical industry, including food processing, aerospace, alternative energy, automotive, chemical manufacturing, environmental services, pharmaceuticals, and mining. Therefore, the chemical industry has had many positive effects on Ontario's economy.

However, as with many human activities, the chemical industry can have unintended negative effects. Ada Lockridge knows this more than most people (Figure 4.19). Lockridge grew up in Aamjiwnaang First Nation Reserve near Sarnia, Ontario. Here, 62 different chemical plants make up Canada's Chemical Valley, which surrounds the reserve. Like many residents of the area, Lockridge first ignored the strong smells and occasional chemical spills and accidents. As the years went by and she had children of her own, Lockridge grew concerned that there might be negative environmental effects from chemicals released from the Chemical Valley.

In 2003, Lockridge learned from biologist Michael Gilbertson that the environment of the reserve had higher-than-normal levels of certain chemicals that could be hazardous to human health. Some of these chemicals were known to affect the number of male babies born. Were these chemicals affecting the health of the Aamjiwnaang First Nation community?

To answer that question, Lockridge checked the birth records for her reserve. The results were shocking. Between the mid-1990s and 2003, the number of male babies had dropped off significantly.



Figure 4.19 Ada Lockridge

In 2005, in the well-respected journal *Environmental Health Perspectives*, Lockridge and her colleagues published a paper relating the skewed birth ratio to chemicals in the environment.

Analyze and Evaluate

- Answer the question posed under the heading "Issue." Support your answer using the information in this activity.
- Web 2.0** Develop your answer as a Wiki, a presentation, a video, or a podcast. For support, go to [ScienceSource](#).
- Would you expect an employee of a chemical plant to come to the same conclusions about the health problems on the Aamjiwnaang First Nation Reserve as Lockridge and her colleagues? Why?
- Environmental Health Perspectives* is a peer-reviewed journal. A peer-reviewed journal is one in which expert scientists must review and approve research before it is published. Do you think it was important for Lockridge and her colleagues to publish their research in a peer-reviewed journal? Why?

Skill Practice

- Identify any sources of bias in this report.