# High School Chemists Bring Groundwater Contamination to Surface

by Kelly Loverock
*Alternatives* **27:4**

Fall 2001

Few students expect to unearth a real controversy when conducting a high school science project. But in Burnaby, BC, Kevin Kelln and Matthew Clive's assignment to "determine the effects of the Chevron refinery on the surrounding environment and community" has subjected Chevron to a great deal of scrutiny and thrust the two Grade 11 students into the spotlight.

Concern lies with water samples taken from north of the Chevron refinery near the Burrard Inlet. The samples, gathered by the two Alpha Secondary School students, revealed the presence of methyl tertiary-butyl ether (MTBE). Later testing on the same sites showed traces of benzene. As it turns out, Chevron already had similar results from on-site tests, yet led the public to believe it knew nothing of a problem.

MTBE is a controversial fuel additive developed to help reduce air pollution from vehicle emissions. It is added to gasoline to increase the combustion efficiency of fuel, thereby reducing carbon monoxide emissions. Although it's good for the air, the chemical can have a major negative impact on groundwater.

MTBE is highly soluble and mobile in water and is both difficult and costly to remove once released. The primary source of MTBE in the environment is from leaking underground gasoline storage tanks.

In March 2000, the United States Environmental Protection Agency recommended that use of MTBE be discontinued in the United States, classifying it as a possible human carcinogen.

Benzene is a well-known human carcinogen. It is a component of gasoline, and in its raw form is found in crude oil and natural gas liquids. The chemical is not banned in Canada, but the federal government has put in place a strategy to dramatically reduce its use. It has been designated for control under the Canadian Environmental Protection Act.

The students took a total of five water samples around the refinery and in neighbouring Confederation Park.

Tests conducted later by the City of Burnaby found MTBE levels to be three times higher than those found by the students.

The students revealed their findings on April 7, 2001. The following day, Chevron community affairs manager Ray Lord responded to the announcement by telling the media that, "There is nothing operationally here that would indicate any problems." Unknown to both the public and the City of Burnaby at that time, Chevron had been aware since April 4 of significant on-site contamination of both MTBE and benzene.

That was the day Seacor Environmental Engineering Inc.—hired by Chevron to conduct on-site tests between September 2000 and April 2001—reported severe contamination of MTBE and benzene on refinery property.

Although the company did inform the BC Ministry of the Environment of the problem, the Ministry agreed to withhold the information from the public to give Chevron time to get its story straight. After the release of the students' findings, the Ministry disclosed its arrangement with Chevron and the Seacor tests came to light.

Although Chevron has yet to produce plans for a clean-up of the MTBE or benzene, the students have been rewarded for their diligent work. They earned the 2001 Burnaby Environmental Award in early June.

Copyright © 2003 Nelson