
Irving Oil Environmental Performance

Irving Oil operates Canada's largest refinery in Saint John, New Brunswick. The existing refinery has reached production rates in excess of 300,000 barrels per day. On a comparative "per barrel" basis, the Irving Oil refinery is one of the cleanest in Canada.

LOCAL AIR QUALITY IMPROVEMENT

The Government of Canada, working with provincial and territorial governments, has established standards to protect the quality of the air we breathe. In fact, the Saint John area has the strictest air-quality standards in Canada for sulphur dioxide.

In a study released in 2003, environmental scientist Dr. David Besner concluded that there had been a dramatic and substantial improvement in the quality of the air in Saint John. Annual average ground level concentrations of sulphur dioxide had been reduced by 43 per cent between 1992 and 2000 – the greatest decrease in Canada. Sulphur dioxide levels in Saint John were 60 per cent better than government standards and four per cent less than the Canadian average.

Dr. Besner also reported that nitrogen dioxide levels in Saint John were 51 per cent lower than the Canadian average – lower than almost every other city in Canada and 85 per cent better than government standards. Total suspended particulate matter dropped by 60 per cent from 1976 to 1998, and was 75 per cent better than government standards.

Saint John has an extensive air-quality monitoring network to continuously measure the outdoor concentrations of specific substances. In place since the early 1970s, this network is operated by the provincial and federal governments in cooperation with local industry. The results of this monitoring are published annually by the New Brunswick Department of the Environment.

The New Brunswick Department of the Environment regulates the operation of the existing Saint John Refinery through Approvals to Operate issued under the Air Quality Regulation – Clean Air Act and the Water Quality Regulation – Clean

Environment Act. These approvals establish emission limits, testing and reporting requirements and air-quality objectives for several substances to ensure that the refinery's operations do not adversely affect the environment or the health of people in Saint John. The refinery reports emissions to the Department of the Environment on a monthly basis and reports emissions annually to Environment Canada.

INVESTING IN ENVIRONMENTAL PERFORMANCE

Over the last decade, Irving Oil has invested well over \$2 billion in the refinery, a large portion of which has related to environmental performance. The most extensive of these investments was the Refinery Upgrade Project in 2000. As a result of the company's emission-reduction strategies, between 2000 and 2005, the annual emissions of volatile organic compounds (VOCs) have decreased by 12 per cent, particulate matter by 16 per cent, and sulphur dioxide (SO₂) by 24 per cent. Irving Oil will continue to make investments to improve the operating and environmental performance of the existing refinery. For example, the construction of a new sulphur recovery unit this spring will further reduce SO₂ emissions by 26 per cent.

NEIGHBOUR RELATIONS

Some of the substances produced at the Saint John Refinery have a distinct odour. Although odour itself is not considered to be a health or safety concern, Irving Oil is currently working with its neighbours to identify and confirm the source of odours and to implement measures to reduce them. For example, Irving has replaced seals on the storage tanks closest to neighbours. Based on weather conditions, the refinery has altered schedules of on-site activities that may result in odours, and the company is currently undertaking an odour study to quantify odour sources.

continued...

Irving Oil believes that community input and consultation are important. The Saint John Refinery routinely communicates with its neighbours to keep them updated about refinery activities. Area residents can also call the refinery at any time of the day or night and staff will respond to their inquiries in a timely manner.

ENERGY EFFICIENCY AND CLIMATE CHANGE

Irving Oil uses heat and electricity to produce clean gasoline, diesel and other fuels for the North American market. In the process of refining crude oil, carbon dioxide is also produced. Although carbon dioxide in concentrations found outdoors has no direct adverse effect on human health, there is a growing recognition that on a global level, the accumulation of carbon dioxide and other greenhouse gases are contributing to climate change.

Irving Oil produces low-sulphur clean fuels. This benefits people in New Brunswick directly from local use, and indirectly by reducing trans-boundary pollution from the northeastern United States, especially in summer.

Using energy efficiently reduces operating costs and greenhouse gas emissions. Unlike some refineries, Irving Oil generates more than 90 per cent of the energy required within the refinery. In 2004, Irving Oil partnered with TransCanada Energy to develop a cogeneration power plant at the Saint John Refinery. This energy-efficient plant uses one form of energy, natural gas, to produce steam and electricity, which are both used as sources of energy in the refinery process. Just like many other Canadians, Irving Oil continues to actively look for new opportunities to improve energy efficiency. Over the last four years, Irving Oil has reduced the amount of energy consumed per barrel of crude oil processed by 15 per cent.

THE MARINE ENVIRONMENT

Saint John has one of the most accessible, ice-free, deep-water ports on the Atlantic east coast. These natural attributes contribute to a safe and efficient operation. In addition, the modern vessels used to transport crude oil and refined products to and from the Saint John Refinery are equipped with a number of safety features, including double-hulls, to reduce the possibility of any adverse environmental impacts in the event of an accident.

Precautionary measures are also in place to monitor and avoid impacts to marine life. In partnership with the Canadian government, scientists and environmental groups, Irving Oil helped reduce the probability of ship and whale collisions in the Bay of Fundy by 95 per cent for the world's most endangered whale – the North Atlantic Right Whale. And through a partnership with the New England Aquarium, the company continues to support the protection of the Right Whale through research and conservation programs.

ACHIEVEMENTS

Irving Oil was the first Canadian refiner to make high-octane gasoline without the use of lead additives, the first to market low-sulphur gasoline, and the first oil company ever to receive the United States Environmental Protection Agency's Clean Air Excellence Award. The company has also received:

- North American Refiner of the Year by World Fuels
- The Maine Coalition for Sustainable Development Clean Energy Award
- The Canadian Council of Ministers of the Environment Innovations Award
- A Gold Status Leadership Award by Canada's Climate Change Voluntary Challenge and Registry