



National Energy Board

Office national de l'énergie

FOCUS ON SAFETY AND ENVIRONMENT

A COMPARATIVE ANALYSIS OF PIPELINE PERFORMANCE - SUMMARY

2000-2007

PIPELINE PERFORMANCE 2000 - 2007

The National Energy Board continuously searches for ways to improve its performance. This is the NEB's seventh annual report comparing the safety, integrity and environmental performance of NEB-regulated pipelines to their past performance and to that of pipelines regulated by similar organizations. It is one of the many ways the NEB meets its objective to track and regularly report on results.



Throughout 2007, hundreds of people worked on NEB-regulated pipelines. To prepare this report, the Board looked at the activities of more than 2,880 full-time equivalent workers who were involved in building, operating and maintaining more than 40,000 kilometres of pipeline in 2007.

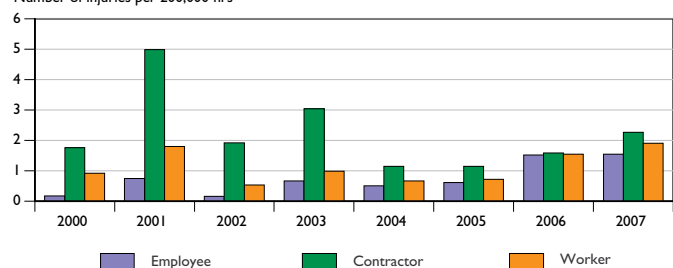
PUBLIC AND WORKER SAFETY

Injuries and Fatalities

The year 2007 was the tenth consecutive year in which there were no fatal accidents during the construction and operation of NEB-regulated pipelines. However, the nature of the business and the number of people working in the industry means that serious accidents can happen. The NEB recognizes that minimizing the potential for fatalities requires a commitment to diligence and safe operating procedures.

Injury Frequency

Number of injuries per 200,000 hrs



In 2007, the men and women who worked on NEB-regulated pipelines suffered 1.9 injuries for every 100 full-time workers, compared to 1.6 injuries per 100 full-time workers in 2006. As this is the second consecutive year that the injury frequency rate for workers, which includes both regular, full-time employees and contractors, has increased, the NEB is concerned. The greatest contributor to this increase is the gas pipeline sector, which accounts for 65 per cent of NEB-regulated pipelines in terms of length, and has experienced a jump in injuries in 2006 and 2007 for both contractors and employees.

In contrast, the injury frequency for employees working on liquid pipelines dropped by 67 per cent in 2007. The contractor injury frequency of 2.4 injuries for every 100 full-time contractors was consistent with 2006. This rate is also lower than the eight-year average of 3.4 injuries for every 100 full-time contract workers.

The injury frequency rate for contractors working on NEB-regulated pipelines is on average very similar to that reported by the Canadian Association of Petroleum Producers in the upstream energy sector. The NEB's eight-year average indicates that two out of 100 full-time contract workers sustain serious injuries every year.

The NEB increased its safety inspections of field activities, including pipeline construction, in 2007. The purpose of these inspections is to monitor and evaluate activities in the field so that the NEB can better understand and communicate with the pipeline industry those measures that can improve worker safety. The inspections found that compliance with NEB regulations increased for the third consecutive year.

Pipeline Rights of Way Issues

Unauthorized activities such as construction, landscaping or driving a vehicle on a right of way can damage the pipeline or make it difficult for crews to access the pipe in case of an emergency. The total number of unauthorized activities on rights of way between 2005 and 2007 has stabilized at nearly 70 per year. However, this number of unauthorized activities is above the eight-year average of 53.

The number of times a pipeline is contacted or struck by someone who may be digging within a right of way is consistently low, ranging from one to two per year, or less than five per cent of the total number of unauthorized activities. However, increasing urban encroachment on pipeline rights of way is a growing concern in the future and may result in an increased number of unauthorized activities on rights of way.

Pipeline Ruptures

After four years without a rupture, there were two ruptures on liquid pipelines in 2007. In July, the Board responded to an oil pipeline spill from an NEB-regulated pipeline in Burnaby, British Columbia. An underground 24-inch pipeline was struck by a third-party contractor doing construction in the community. Approximately 232 cubic metres (1,460 barrels) of heavy synthetic crude oil was released. This incident caused significant effects on a marine environment and personal property. The site of this spill has been cleaned up to remove immediate risks to the public and the environment and the NEB is monitoring the ongoing remediation of any residual contamination.

The second rupture was caused by pipeline fatigue which allowed approximately 990 cubic metres (6,227 barrels) of crude oil to spill in a farmer's field near Glenavon, Saskatchewan. In this case, the contaminated areas have been remediated to the NEB's satisfaction.

The leading cause of ruptures on NEB-regulated pipelines is cracking and metal loss caused by corrosion. In other jurisdictions, external interference by third parties is the most frequent cause of pipeline ruptures.

PIPELINE ENVIRONMENTAL PERFORMANCE

Liquid Releases, Leaks and Spills

As mentioned above, there were two major releases due to ruptures on liquid pipelines in 2007 that released a significant volume of fluid. In the case of a spill, leak or major release, the Board's role is to ensure that the companies responsible conduct environmental site assessments and clean up any contamination at the spill sites. The NEB monitors situations where remediation of residual soil or groundwater contamination is ongoing.



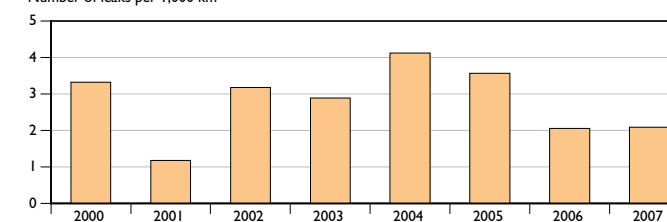
Overall, NEB-regulated liquid pipelines have an eight-year average of 0.05 pipe body liquid releases per 1,000 kilometres or one reportable leak for every 20,000 kilometres of pipe. In 2007, NEB-regulated companies reached an eight-year high of liquid pipe body releases with 0.28 releases for every 1,000 km.

On average, approximately 44 operational leaks per year are reported on NEB-regulated pipeline systems. According to the eight-year average, there are approximately three liquid leaks from non-pipe body sources for every 1,000 kilometres of pipeline. In 2007 there were 2.4 leaks for every 1,000 kilometres of pipeline which is comparable to the five-year low reported in 2006.

In 2007, there were no spills of lubricants or equipment fluids during the construction or maintenance of NEB-regulated pipelines that were greater than 1.5 cubic metres. There were 36 spills, each of which was less than 1.5 cubic metres and the total volume released was less than two cubic metres.

Operational Liquid Leak Frequency

Number of leaks per 1,000 km



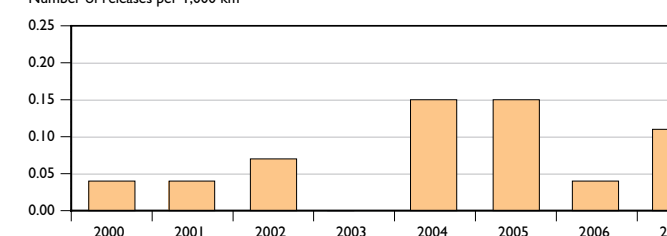
Gas Releases

Pipe body gas releases for NEB-regulated pipelines occurred with a frequency of approximately 0.08 releases per 1,000 kilometres or one gas release for every 12,500 kilometres over the past eight years. In 2007 the average pipe body release frequency was 0.11 per 1,000 km which is higher than normal, but similar to levels experienced in 2004 and 2005.

Operational gas leaks on the other hand, happen through equipment, including venting from valves and seepage at flanges. With approximately 0.75 leaks per 1,000 kilometres of pipe, operational gas leaks on NEB-regulated gas pipelines occur about 10 times more often than pipeline body gas releases.

Pipe Body Gas Release Frequency

Number of releases per 1,000 km



NEB SAFETY INITIATIVES – LOOKING AHEAD

Protecting the environment and the safety of the public and the people who build and operate pipelines is of paramount importance to the NEB. Injury frequencies, incident trends and other indicators help the NEB to identify where improvement is needed.

In 2008, the NEB noted a significant increase in the number of reported incidents. It is recognized that all companies are challenged when it comes to safety by:

- the recent increases in construction activity;
- declining experience in the work force;
- an increasing pressure to meet deadlines; and,
- worker complacency.

These factors may partially explain the increases in injury frequencies that have been observed in the *Focus on Safety and Environment: A Comparative Analysis of Pipeline Performance* report. For more information please click on "Safety Performance Indicators" under the safety tab on the National Energy Board website. The Board is committed to working with the companies it regulates and other stakeholders to find ways to improve the safety performance of the pipeline industry. The NEB's goal is to reduce the number of incidents and injuries to as low a level as possible. In 2007, the NEB adopted a risk-based approach to help determine the degree of regulatory oversight required for a project based on the project's complexity, the degree of risk involved and the company's historical compliance performance. This approach allows the NEB to focus our compliance resources on companies that will benefit the most from regulatory oversight. As a result, NEB staff conducted 216 compliance activities in 2008, more than double the number conducted in 2007.

In May 2009, the NEB held a public forum to address a wide variety of topics ranging from regulatory reform to pipeline safety. The forum included a panel discussion on pipeline safety with representatives from contractors, industry and pipeline regulators. This is one example of the ongoing dialogue on safety that the NEB conducts with industry. Continuous improvement will ensure that pipelines remain the safest mode of energy transportation in Canada. The safety of the facilities, the public and that of the men and women who build and operate them is and will remain, the Board's primary goal.

FOR A PIPELINE EMERGENCY:

Please call the Transportation Safety Board's 24-hour hotline at 819-997-7887.

For other emergencies, please call the NEB at 403-807-9473.

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