National Energy Board | Office national de l'énergie

FOCUS ON SAFETY AND ENVIRONMENT

A COMPARATIVE ANALYSIS OF PIPELINE PERFORMANCE

2000-2008

AUGUST 2010

Canada

PIPELINE PERFORMANCE 2000 - 2008

The National Energy Board (NEB, the Board) continuously searches for ways to improve its performance. This is the NEB's eighth annual report comparing the safety, 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 2008, thousands of people worked on NEB-regulated pipelines. To prepare this report, the Board looked at the activities of more than 9 500 full-time equivalent workers who were involved in building, operating and maintaining more than 45 000 kilometres of pipeline in 2008.

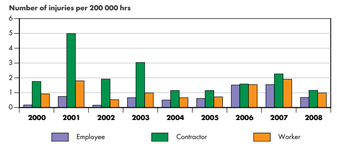
PUBLIC AND WORKER SAFETY

Injuries and Fatalities

For the first time in nine years, there were fatalities on energy facilities regulated by the NEB. On 24 March 2008, near Kerrobert, Saskatchewan, an electrician employed by a pipeline company died while working with high voltage electricity. The investigation has concluded and the details are available on the NEB website. On 24 June 2008, near Biggar, Saskatchewan, a pipeline construction worker lost control of a vehicle which rolled over in a ditch. The worker was ejected from the vehicle and sustained fatal injuries. The RCMP has concluded its investigation into the incident.

While the NEB recognizes the efforts regulated companies and their contractors make to operate safe workplaces, the nature of the industry and the number of persons working within it pose a continuous risk. In order to reduce risk to the public and workers, proactive safety management must be a priority for the industry.

Injury Frequency



In 2008, the men and women who worked on NEB-regulated pipelines suffered one injury for every 100 full-time workers, compared to 1.9 injuries per 100 full-time workers in 2007, constituting a 47 per cent reduction in overall injury frequency. This rate includes both regular, full-time employees and contractors.

In contrast to 2007, the gas pipeline sector, which accounted for approximately 65 per cent of NEB-regulated pipelines in terms of length in 2008, experienced a steep decline in injuries for both contractors and employees. There was a 73 per cent drop in injury frequency for that sector in 2008.

The injury frequency for employees working on liquid pipelines showed a slight increase to 0.53 injuries for every 100 full-time employees in 2008 from 0.38 injuries per 100 employees in 2007. The contractor injury frequency of 1.4 injuries for every 100 full-time contractors represented a 43 per cent reduction from reported 2007 levels. The overall injury frequency rate on liquid pipelines showed an eight per cent reduction over the nine-year average.

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 nine-year average indicates that approximately two out of 100 full-time contract workers sustain serious injuries every year.

The year 2008 was a busy construction year for the pipeline industry, with employees and contractors working nearly four times as many hours as they did in 2007. Although there was a significant decrease in the frequency of injuries, the Board remains concerned about the high number of injuries sustained by workers in the pipeline industry.

The NEB increased its safety inspections of field activities, including pipeline construction, from 25 in 2007, to 42 safety inspections in 2008. The purpose of these inspections is to monitor and evaluate activities in the field and at facilities to ensure company compliance with appropriate safety legislation, regulations, standards and NEB project conditions.

Pipeline Rights of Way Issues

Unauthorized activities such as construction, landscaping or equipment operation on a right of way can damage the pipeline or make it difficult for crews to access the pipe in case of an emergency. In 2008 the number of unauthorized activities on pipeline rights of way nearly doubled to 126 from 68 in 2007. This increase is due, in part, to a safety initiative launched by a major pipeline company to increase reporting of unauthorized activities on pipeline rights of way.

The number of instances where a pipeline is touched or struck by someone digging or performing other work on 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. In 2008 no unauthorized pipeline contacts were reported. However, increasing urban encroachment on pipeline rights of way continues to be a growing concern and may result in an increased number of unauthorized activities on rights of way.

Pipeline Ruptures

No ruptures were reported on NEB-regulated pipelines in 2008. However, after four years without a rupture, there were two ruptures on liquid pipelines reported in 2007.

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

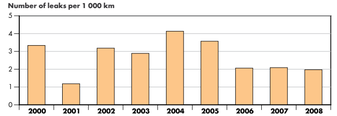
Liquid Releases, Leaks and Spills

In the case of a spill, leak or major release, the Board's role is to ensure that the regulated companies conduct environmental site assessments and provide a remedial action plan for cleaning up contamination at the spill site and the site's eventual restoration to original or equivalent capacity. The NEB monitors situations where remediation of residual soil or groundwater contamination is ongoing.

Overall, NEB-regulated liquid pipelines have a nine-year average of 0.1 pipe body liquid releases per 1 000 kilometres or one reportable leak for every 10 000 kilometres of pipe. In 2008, there were no pipe body liquid releases reported on NEB-regulated pipelines.

On average, approximately 40 operational leaks, leaks originating from pipeline components such as flanges or valves, per year are reported on NEB-regulated pipeline systems. According to the nine-year average, there are approximately three liquid leaks from non-pipe body sources for every 1 000 kilometres of pipeline. In 2008 there were two leaks for every 1 000 kilometres of pipeline, the lowest reported rate since 2001.

Operational Liquid Leak Frequency



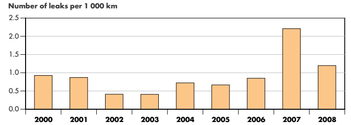
In 2008, there were 19 spills of lubricants or equipment fluids during the construction, or maintenance of NEB-regulated pipelines, three of which released more than 1.5 cubic metres. The total volume released by all 19 spills was approximately 15 cubic metres.

Gas Releases

Pipe body gas releases for NEB-regulated pipelines occurred with a frequency of approximately 0.09 releases per 1 000 kilometres or one gas release for every 11 100 kilometres over the past nine years. In 2008 the pipe body release frequency was 0.24 per 1 000 km which constitutes the highest frequency yet reported in this publication.

Operational gas leaks, which are leaks from pipeline components, including venting from valves and seepage at flanges occur approximately five times more frequently than pipebody releases; with a frequency in 2008 of 1.2 leaks per 1 000 kilometres.

Operational Gas Release Frequency



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 2009, the NEB took over jurisdiction of TransCanada's Nova Gas Transmission System, resulting in a 50 per cent increase in the overall length of pipeline under the Board's jurisdiction. In order to ensure that this extensive system meets federal safety legislation, a third-party audit and a series of safety inspections to assess levels of compliance were carried out. Also in 2009, three ruptures were reported on NEB-regulated pipelines, these ruptures are currently under active investigation.

Due to the Board's ongoing concern about major incidents and incident frequencies along its regulated pipeline, an initiative has been launched to approach incidents from a management systems perspective and to work to ensure that possible systemic issues are dealt with proactively.

The Board is committed to finding 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 2008, the NEB continued to employ a risk-based approach to determine the degree of regulatory oversight required for its regulated companies. This approach allows the NEB to focus compliance resources on companies that will benefit the most from regulatory oversight; as a result, NEB staff conducted 239 compliance activities in 2009.

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. For more information, on current safety performance indicators, please click on "Safety Performance Indicators" under the safety tab on the National Energy Board website.

Continuous improvement will ensure that pipelines remain the safest mode of energy transportation in Canada. The safety of the facilities, the men and women who build and operate them and the public 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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