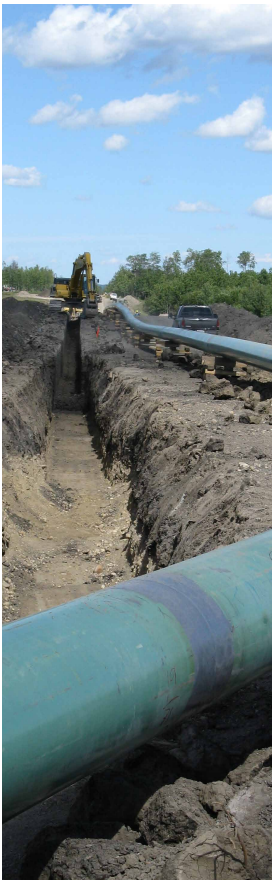
National Energy Board

Office national de l'énergie

FOCUS ON SAFETY AND ENVIRONMENT

A COMPARATIVE ANALYSIS OF PIPELINE PERFORMANCE - SUMMARY

2000-2009



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PIPELINE PERFORMANCE 2000 – 2009

The National Energy Board (NEB, the Board) continuously searches for ways to improve its performance. This is the NEB's ninth 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 tracks and regularly reports on results.

Throughout 2009, thousands of people worked on NEB-regulated pipelines. To prepare this report, the Board looked at the activities of more than 16 000 full-time equivalent workers who were involved in building, operating and maintaining more than 71 000 kilometres of pipeline in 2009.

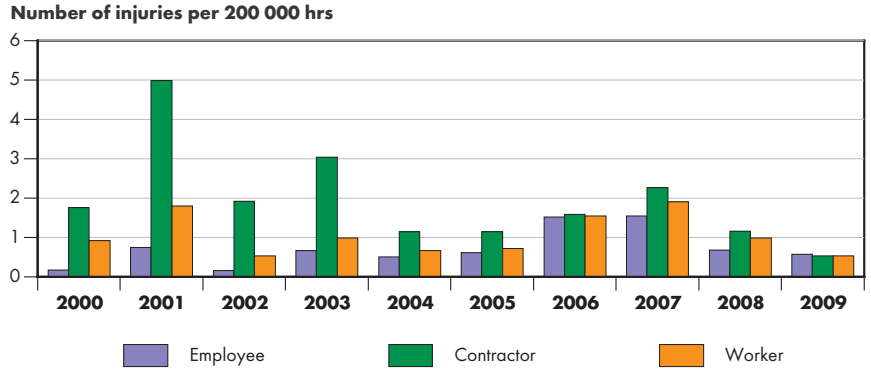
The year 2009 was a busy one for the pipeline industry. There were several large pipeline construction projects underway, including the South Peace Pipeline Project in Northeast BC, the Brunswick Pipeline Project in New Brunswick, the Canadian portion of Keystone XL pipeline and the 1 078 km-long Alberta Clipper Expansion Project. In fact, pipeline workers logged 32 567 727 hours in 2009, or the equivalent of 3 717 years.

PUBLIC AND WORKER SAFETY

Injuries and Fatalities

There were no fatalities on NEB-regulated pipelines in 2009. However, companies regulated by the NEB reported two fatalities in 2008, the first work-related fatalities on NEB-regulated pipelines since 1997. While the NEB recognizes the efforts companies and their contractors make to operate safe workplaces, the nature of the industry and the sheer number of workers pose a continuous risk. In order to reduce this risk, proactive safety management must be a priority for the industry.

Injury Frequency



The latest statistics show that the injury rate for pipeline workers has dropped by 47 per cent. In 2009, the men and women who worked on NEB-regulated pipelines suffered 0.53 injuries for every 100 full-time workers. In 2008, the injury rate was one injury for every 100 full-time workers. This rate includes injuries to both employees and contractors.

To better understand worker injuries, the NEB looks at how often a regular, full-time company employee is injured on the job compared to temporary, contract workers. Traditionally, contractors were injured more often than regular company employees. The NEB's nine-year average indicates that approximately two out of 100 full-time contractors sustain an injury every year. In 2009, that injury rate fell nearly 60 per cent to 0.5 injuries for every 100 full-time contractors. However, of the seven serious injuries reported to the NEB in 2009, five were suffered by contractors. The most common direct cause of all serious injuries suffered by pipeline workers over the past nine years is being hit by an object or equipment.

Although there was a significant decrease in the frequency, the Board remains concerned about the number of injuries sustained by workers in the pipeline industry. As a result, NEB staff conducted 71 safety inspections in 2009, up from

42 in 2008. The purpose of these inspections is to monitor and evaluate activities in the field and at facilities to ensure the company is complying with appropriate safety legislation, regulations, standards and NEB project conditions.

Pipeline Right 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. Because they are buried, pipelines can be at risk for accidental damage when there is a mechanical excavation or construction project underway nearby.

In 2009 the number of unauthorized activities on pipeline rights of way increased to 149 from 126 in 2008. This rise is due, in part to continued efforts by pipeline companies to increase reporting of unauthorized activities on pipeline rights of way. The majority of these unauthorized activities were conducted by contractors, which stresses the importance of the Call Before You Dig program and the Canadian Common Ground Alliance. As the federal regulatory champion for the Canadian Common Ground Alliance, the NEB works to promote living and working safely around pipelines and other buried infrastructure.

NEB-regulated pipeline are rarely touched or struck by someone digging or performing other work on a right of way, with one to two such events per year. This is less than five per cent of the total number of unauthorized activities. For the second year in a row, no unauthorized pipeline contacts were reported in 2009. 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

There were five ruptures on NEB-regulated pipelines in 2009, all on natural gas pipelines. Three of these ruptures happened in Ontario, one in British Columbia and one in Alberta. Four of these ruptures were caused by metal loss or cracking and the fifth occurred when a contractor employed by the pipeline company struck the line with a piece of equipment. All of these incidents are currently being investigated by the NEB.

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.

Ruptures on NEB-regulated pipelines are relatively rare. There were no ruptures in 2008 and the nine-year average for ruptures on NEB-regulated pipelines is 1.9 per year.

PIPELINE ENVIRONMENTAL PERFORMANCE

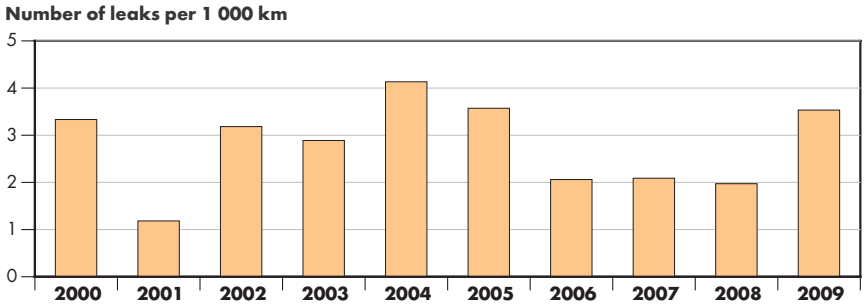
Liquid Releases, Leaks and Spills

In the case of a spill, leak or major release, the Board's role is to oversee the regulated company's response and ensure that environmental site assessments are conducted and a remedial action plan for cleaning up contamination at the spill site and the site's eventual restoration to original or equivalent capacity is provided. The NEB monitors situations where remediation of residual soil or groundwater contamination is ongoing. This process is set out in the Board's Remediation Process Guide, which was released in May 2011 and is available on the NEB website.

NEB-regulated liquid pipelines have a ten-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 2009, there were two pipe body liquid releases on NEB-regulated pipelines, which discharged a total of 1 243 m^3 of liquid hydrocarbon products. One of these incidents released a significant volume of hydrocarbons, although the product did not impact any water bodies in the area. The Board is monitoring the ongoing remediation of the site along with the company's management of residual contamination.

On average, approximately 40 operational leaks per year are reported on NEB-regulated pipeline systems. In 2009, there were 51 operational liquid leaks. Operational leaks originate from pipeline components such as flanges or valves. According to the nine-year average, there are approximately three liquid operational leaks for every 1 000 kilometres of pipeline, or one operational leak every 358 kilometres. In 2009 there were 3.53 leaks for every 1 000 kilometres of pipeline reported.

Operational Liquid Leak Frequency



Gas Releases

Over the past ten years, there were approximately 0.1 releases of natural gas from pipebodies for every 1 000 kilometres of NEB-regulated gas pipelines. This equates to one gas release for every 11 000 kilometres of pipe. In 2009 the frequency of releases from natural gas pipelines rose to 0.15 releases per 1 000 km of pipeline which is lower than the rate reported in 2008, but still above the 10-year average.

Operational gas leaks, or leaks from pipeline components, including venting from valves and seepage at flanges, are approximately seven times more common than pipebody releases. In 2009 there was one leak per 1 000 kilometres of gas pipeline.

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.

Since 2007, the NEB has noticed an increased trend in the number and the severity of incidents being reported by NEB-regulated companies. The NEB recognizes that a reduction in the number and severity of pipeline incidents depends on actions taken by industry. In order to understand the reasons behind the trend in more detail, the NEB analyzed over 100 incidents related to safety, integrity and damage prevention programs. The analysis identified both technical and management system root causes that contributed to each incident. The NEB shared the results of this analysis at a full-day workshop in February 2011 to promote the generation of systemic strategies to reduce incidents.

The Board also launched an initiative to approach incidents from a management systems perspective in order to help ensure that possible systemic issues are dealt with proactively. The Board intends to clarify its expectations on management systems through a proposed amendment to the *Onshore Pipeline Regulations – 1999*. This will assist companies in having a systematic approach to reducing safety and environmental incidents. The Board is also planning to develop leading performance measures which could be used to help better understand the root causes of incidents, in addition to the lagging measures tracked in this report.

The Board is committed to finding ways to improve the safety performance of the pipeline industry. In 2009, the NEB continued to use a risk-informed 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. In 2010, NEB staff conducted 211 compliance activities.

Continuous improvement will ensure that pipelines remain the safest mode of energy transportation in Canada. Safety and environmental protection are of paramount importance to the NEB.

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.