



## Addendum to Enbridge's 2013 Corporate Social Responsibility Report (with a focus on 2013 data)

### Spills, Leaks and Releases Performance Data Sheet

This performance data sheet relates to the following Global Reporting Initiative (GRI G3.1) Environmental Performance Indicators:

- EN23 – Total number and volume of significant spills
- EN24 – Weight of transported, imported, exported or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III and VIII, and percentage of transported waste shipped internally
- EN25 – Identity, size, protected status and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff

#### Context

High-profile incidents, such as our July 2010 oil spill into the Kalamazoo River near Marshall, Michigan, together with increased scrutiny and rapidly changing expectations on the part of regulators and stakeholders, have led us to re-engineer our practices and policies relating to safety and spills, leaks and releases.

Specifically, we are adopting the mindset of industries such as aerospace, airlines, nuclear and chemical processing, in which there is refusal to accept that any incident is inevitable or acceptable. Companies in these industries—and now Enbridge—strive to become what are known as High Reliability Organizations (HROs), in which the consequences of failure are top of mind; disciplined processes are developed, implemented and continually improved; and strong safety cultures are cultivated.

Toward this end, we have adopted the targets of zero incidents and zero injuries, and are on a Path to Zero by stepping up our efforts to reduce operational risks.

#### Spills, Leaks and Releases Profile

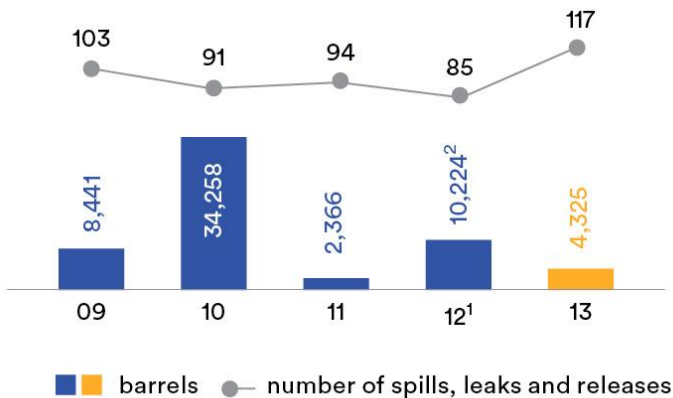
The majority of our spills, leaks and releases in 2013 were:

- Small in volume (less than 10 barrels each)
- Contained within our own facilities, such as pump stations and terminals, and prevented from entering the natural environment and quickly cleaned up
- Discovered soon after they occur, allowing for quick response and clean-up, and resulting in limited impact

In addition, our spills, leaks and releases are infrequent relative to the overall volume of the products we transport. Over the past 10 years, our Liquids Pipelines (LP) business unit delivered approximately 14 billion barrels of crude oil and liquids, and safely delivered 99.9993 per cent of that volume.

## Spills History (2009 – 2013)

Our company-wide reportable commodity spills, leaks and releases over the last five years have been:



## 2013 Key Performance Areas

### #1. Achieve zero incidents

In 2013, LP had 114 reportable commodity (liquids) spills and leaks totaling approximately 4,298 barrels. Of these 114 spills:

- Five were “significant,” which we define as any reportable commodity spill or leak that is greater than 100 barrels or that entails clean-up costs of \$1,000,000 or more. Please see the reports below about our response to those five incidents.
- 104 had a volume of 10 barrels or less
- 100 occurred at Enbridge facilities
- 14 occurred on Enbridge rights-of-way

## Management Approach and Background

To continuously improve the operational reliability of our system, we will continue to implement preventative measures, thoroughly investigate every spill, leak and release, including those that do not meet the threshold requirements for regulatory reporting, and apply lessons learned.

For information on the numerous actions and initiatives we are taking enterprise-wide to reduce spills, leaks and releases, please see the following sections in our [2013 CSR Report](#): Operational Risk Management; Innovation; Asset Integrity and Reliability; and Emergency Preparedness and Response.

## Background on Enbridge’s company-wide liquids spills and leaks

Company-wide, including LP and our Gas Transportation business unit (GT), in 2013 we had 117 reportable commodity (liquids) spills and leaks totaling approximately 4,325 barrels, broken down by business unit as follows:

- LP: 114 spills and leaks, totaling 4,298 barrels
- GT: three spills and leaks, totaling 27 barrels

“Reportable” refers to a spill, leak or release that is large or significant enough to require Enbridge to formally notify a regulatory agency. “Commodity” refers to a marketable hydrocarbon product transported in a pipeline, such as crude oil or natural gas. The reportable commodity spills and leaks we report here do not include spills or leaks of non-commodities such as brine, hydraulic fluid, drilling fluid, lube oil, etc. While we do report spills and leaks of non-commodities to regulatory authorities, beginning in 2013, we are reporting only commodity spills and leaks in our CSR Reports.

Of our 117 company-wide reportable commodity (liquids) spills and leaks:

- 106 of them, or approximately 90 per cent, had a volume of 10 barrels or less
- 101 of them, or approximately 86 per cent, occurred at Enbridge facilities (onsite)
- 16 of them, or approximately 14 per cent, occurred on Enbridge rights-of-way or not located on Enbridge property (offsite)

For comparison purposes, our company-wide reportable commodity<sup>1</sup> spills and leaks over the last five years have been:

- 2013: 117 spills and leaks, totaling 4,325 barrels
- 2012<sup>1</sup>: 85 spills and leaks, totaling 10,224<sup>2</sup> barrels
- 2011: 94 spills and leaks, totaling 2,366 barrels
- 2010: 91 spills and leaks, totaling 34,258 barrels
- 2009: 103 spills and leaks, totaling 8,441 barrels

<sup>1</sup> Beginning in 2013 and in all future CSR reports, we are reporting only commodity spills and leaks (i.e. marketable hydrocarbon products such as crude oil and natural gas transported to market in an Enbridge pipeline) in our company-wide spills and leaks statistics, and are not reporting spills of non-commodities such as brine. Previous years' statistics have not been adjusted to reflect this change.

<sup>2</sup> The volume reported includes 4,246 barrels of crude oil product released to a tank roof that did not result in any environmental damage. However, since the release was reported to the regulator, we have included it in the total volume.

### ***Background on LP's spills and leaks in 2013***

In 2013, LP recorded 114 reportable commodity liquids spills and leaks totaling approximately 4,298 barrels (LP's 114 spills and leaks comprised the majority of Enbridge's 117 company-wide spills and leaks in 2013).

Of LP's 114 spills and leaks in 2013:

- The majority of the spills were small in terms of volume, although LP experienced more spills in 2013 than it did in each of the previous four years. Approximately 91 per cent of them (104), had a volume of 10 barrels or less
- 100 of them, or approximately 88 per cent, occurred at Enbridge facilities (onsite)
- 14 of them, or approximately 12 per cent, occurred on Enbridge rights-of-way or were at least partially located outside of the facility boundary (offsite)

For comparison purposes, LP's reportable commodity<sup>1</sup> spills and leaks over the last five years were:

- 2013: 114 spills and leaks, totaling 4,298 barrels
- 2012<sup>1</sup>: 77 spills and leaks, totaling 10,178 barrels
- 2011: 58 spills and leaks, totaling 2,283.5 barrels
- 2010: 80 spills and leaks, totaling 34,122 barrels
- 2009: 89 spills and leaks, totaling 8,353 barrels

<sup>1</sup> Beginning in 2013 and in all future CSR reports, we are reporting only commodity spills and leaks (i.e. marketable hydrocarbon products such as crude oil and natural gas transported to market in an Enbridge pipeline) in our company-wide spills and leaks statistics, and are not reporting spills of non-commodities such as brine. Previous years' statistics have not been adjusted to reflect this change.

<sup>2</sup> The volume reported includes 4,246 barrels of crude oil product released to a tank roof that did not result in any environmental damage. However, since the release was reported to the regulator, we have included it in the total volume.

In 2013, LP transported approximately two billion barrels of crude oil and liquids on its systems in Canada and the U.S., representing a safe delivery record of 99.9997 per cent. In 2012, LP delivered approximately 1.8 billion barrels and had a safe delivery record of 99.9994 per cent.

### *Background on GT's gas releases in 2013*

GT had one onsite gas release totaling 0.128 million standard cubic feet (MMSCF), which met the reportable incident criteria of the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA).

### *Background on Enbridge's Significant Spills, Leaks and Releases in 2013*

We define "significant spill or leak" as any reportable commodity spill or leak that is greater than 100 barrels or entails clean-up costs of \$1,000,000 or more. One barrel of oil is equal to approximately 159 litres or 42 U.S. gallons.

Neither GT nor our Gas Distribution business unit experienced any significant spills, leaks or releases. LP experienced the following significant spills and leaks in 2013:

- **Near Storthoaks, Saskatchewan:** On February 2, 2013, approximately 220 barrels of crude oil leaked from one of our gathering lines near Storthoaks. We immediately shut down and drained the line and reported the leak to regulatory authorities. The surface area of the leak was approximately 280 square metres (approximately 335 square yards) and the subsurface contamination reached 2,800 square metres (approximately 3,348 square yards). We recovered all contaminated snow and free fluid, and excavated all contaminated soil, which we delivered to a waste handling facility.

We cut out the failed section of the pipeline and sent it to a laboratory for analysis. The leak had been caused by corrosion damage that had, in turn, been caused by the failure of the external coating of the pipe's surface. We replaced the failed section of pipe, conducted an in-line inspection of the line, and returned the line back into service on March 15, 2013. This incident did not impact the community, wildlife or water.

- **Cushing, Oklahoma:** On May 13, 2013, approximately 2,200 barrels of crude oil leaked from one of our trunk lines (a major oil transportation pipeline) at our South Terminal in Cushing. Although the leak took place outside of the terminal's containment area, the oil made its way via a ditch to a small containment pond near one of our tanks. (Our facilities feature berms and containment areas that we have designed specifically to prevent offsite contamination.) The oil flowed from the small containment pond into an adjacent creek and then into a large containment pond, where it was confined. We constructed dams and installed booms to ensure that the oil remained within our facility. We removed approximately 5,853 square metres (7,000 square yards) of impacted material from the leak area, the small pond, the creek and the large pond, as well as from the land that is farmed on-site. This incident involved several animal fatalities and rehabilitations. We completed our cleanup on June 7, 2013, and our restoration on June 21, 2013.
- **Near Cheecham, Alberta:** On June 22, 2013, as a result of heavy rainfall that led to 1-in-100-year water levels and flooding that triggered ground movement on our Line 37 pipeline right-of-way, approximately 1,300 barrels of light synthetic crude oil leaked from the pipeline approximately two kilometres (approximately 1.3 miles) north of our Cheecham Terminal, which is approximately 70 kilometres (45 miles) southeast of Fort McMurray. Line 37 is part of the Enbridge Regional Oil Sands System and connects facilities in the Long Lake area to our Cheecham Terminal.

The leak caused the oil to migrate to the soil surface and over land, then into a nearby lake. We immediately shut down the line, notified regulatory authorities and Aboriginal and Métis communities in the area, and contained the oil in the lake using containment booms and absorbent booms and pads. We also deployed wildlife deterrents around the affected area.

As a precaution, we also shut down the pipelines that share a corridor with Line 37, including the Athabasca, Waupisoo, Wood Buffalo and Woodland pipelines.

We recovered the oil from the impacted areas using various remediation techniques. This process resulted in the removal of approximately 6,800 tonnes of impacted soil and sediment, and the collection and treatment of approximately 3,000 cubic metres (approximately 3,924 cubic yards) of water. We recovered approximately 93 per cent of the oil from the area.

We conducted environmental site assessments concurrently with our remediation work. The assessments included investigations to quantify the leak's impacts to the soil, groundwater, sediment and surface water. In addition, we completed wildlife surveys, vegetation surveys, an aquatic sampling program, an amphibian relocation program and shoreline cleanup and assessment.

Throughout our response, we worked closely with regulatory agencies and local stakeholders to establish a comprehensive response and remediation plan. Our response was effective in mitigating the environmental impacts while minimizing further impacts to the local environment.

On July 11, 2013, we returned Line 37 back to service at a reduced operating pressure. We restored the normal operating pressure on July 29, 2013, after we had completed geotechnical analysis. Both the return to service at reduced and full operating pressures were approved by the Alberta Energy Regulator (AER).

- **Near Griffith, Indiana:** On August 3, 2013, approximately 140 barrels of crude oil leaked from our Griffith Terminal. The leak, which impacted approximately three hectares (approximately 7.33 acres) of land, was fully contained within Enbridge's facility. We immediately reported the leak to the regulatory authorities and mobilized our emergency response efforts. There were no impacts to the local community, wildlife or water.

We recovered the oil from areas where it had pooled using vacuum-powered tanker trucks, and remediated the impacted roads and gravelled areas. Following our emergency response and cleanup efforts, we remediated the impacted areas. We excavated approximately 322 tonnes (355 tons) of impacted soil and transported it offsite for proper disposal. We completed cleaning and restoring the area on August 14, 2013.

- **Near Stoughton, Saskatchewan:** On November 21, 2013, a crude oil leak was identified on Line NB-07 near Stoughton. We immediately shut down and isolated the line and notified regulatory authorities. We excavated all contaminated soil and transported it to a waste handling facility. The volume was confirmed to be 101 barrels. We cut out the failed section of the line and sent it to a laboratory for analysis. At the time of publication of this report the investigation was in progress. This incident did not impact the community, wildlife or water.

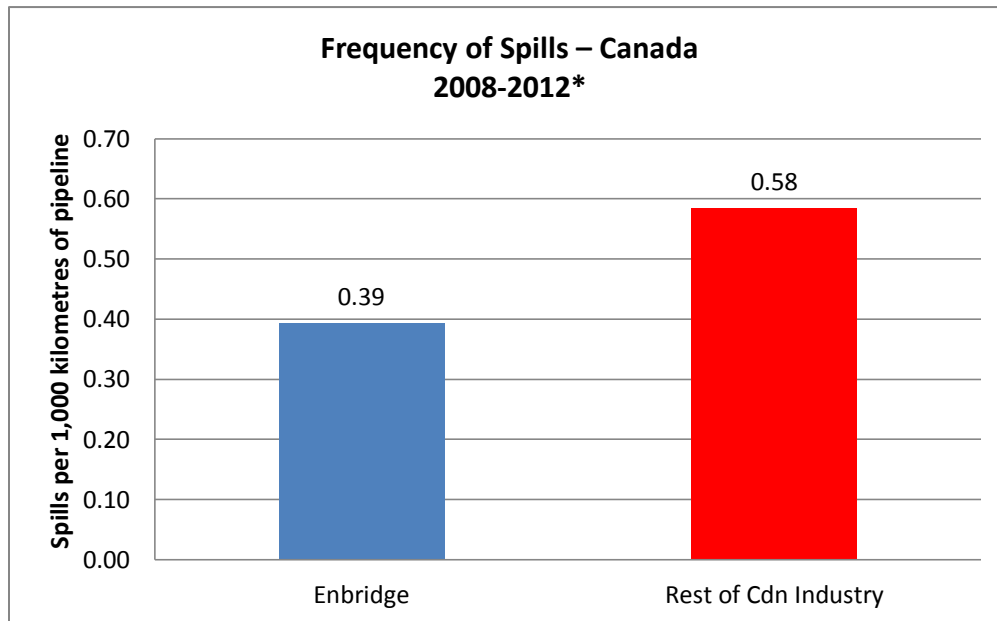
### *Enbridge's Liquids Pipelines Spill Record Compared with Canada and U.S. Pipeline Industry*

Over the past 10 years, our Liquids Pipelines business unit (LP) delivered approximately 14 billion barrels of crude oil and liquids, and safely delivered 99.9993 per cent of that volume. The majority of our spills, leaks and releases are small in volume (less than 10 barrels each); contained within our own facilities, such as pump stations and terminals, and prevented from entering the natural environment and quickly cleaned up; and discovered soon after they occur, allowing for quick response and clean-up, and resulting in limited impact.

#### 1. Canada (LP)

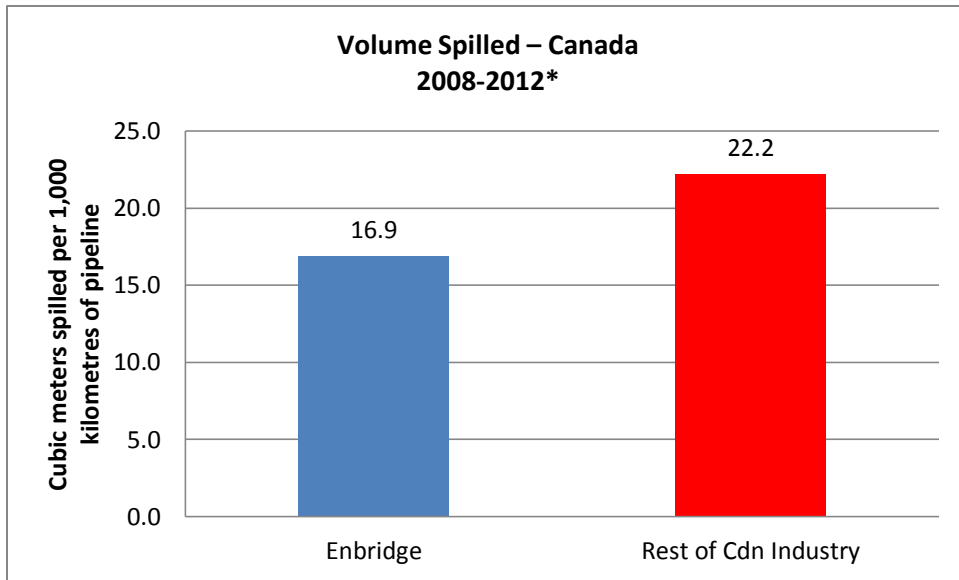
From 2004 to 2013, we operated approximately 64 per cent of the NEB-regulated pipelines in Canada.

- a. **Spill Frequency:** From 2008 to 2012, we experienced 0.39 spills per 1,000 kilometres of pipeline, compared with 0.58 spills per 1,000 kilometres of pipeline for the rest of the liquids pipeline industry in Canada (i.e. the rest of the industry not including Enbridge). **Our spill frequency was approximately 33 per cent better than that of the rest of industry.**



\*These data pertain to NEB-reportable spills of liquid hydrocarbons greater than 1.5 cubic metres or of any volume that could have a significant adverse effect on the environment, regardless of size, such as a spill of hydrocarbons into a water body. All data have been gathered from the NEB report entitled, *Pipeline Incidents: Spills of Hydrocarbon Liquids*, which was last modified September 13, 2013. In Enbridge's case, the data pertain to our Enbridge Pipelines Inc., Westpur, and Norman Wells pipelines.

- b. **Spill Volume:** From 2008 to 2012, we spilled 16.9 cubic meters of liquids per 1,000 kilometres of pipeline, compared with an average of 22.2 cubic meters of liquids per 1,000 kilometres of pipeline for the rest of the Canadian liquids pipeline industry. **Our spill volume was about 24 per cent better than that of the rest of the industry.**

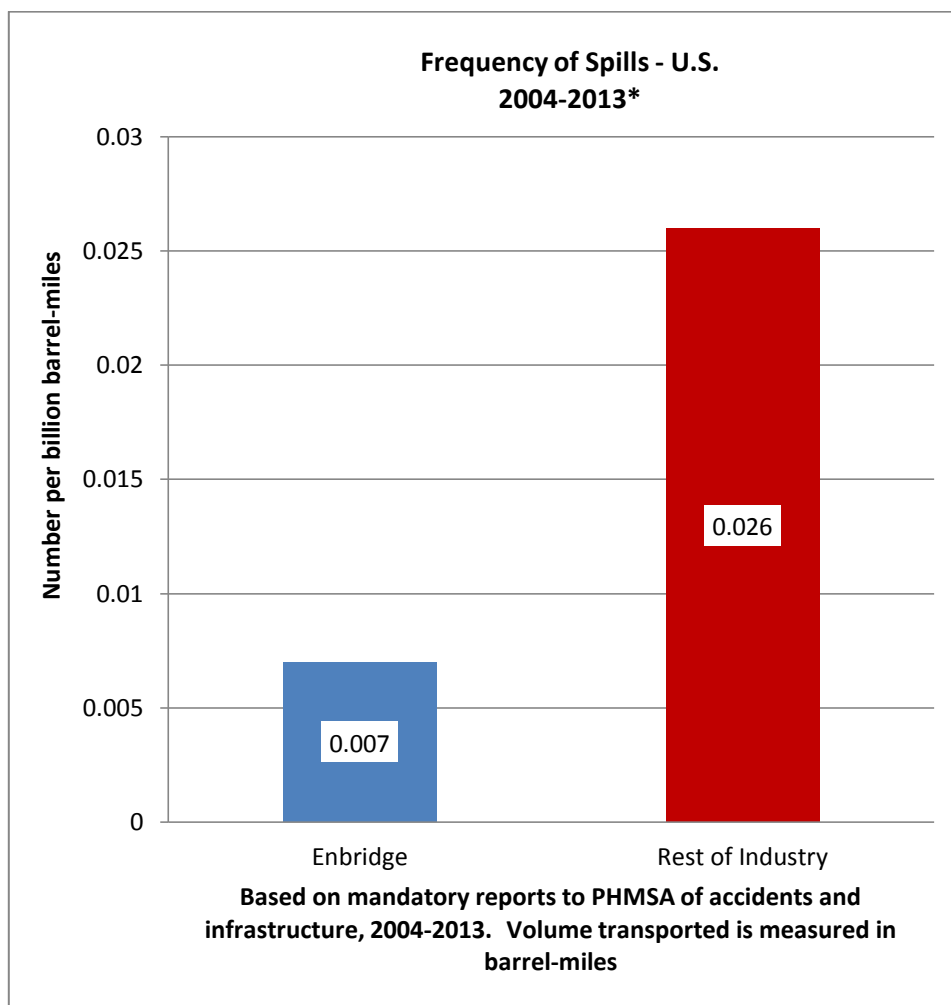


\*These data pertain to NEB-reportable spills of liquid hydrocarbons greater than 1.5 cubic metres or of any volume that could have a significant adverse effect on the environment, regardless of size, such as a spill of hydrocarbons into a water body. All data have been gathered from the NEB report entitled, *Pipeline Incidents: Spills of Hydrocarbon Liquids*, which was last modified September 13, 2013. In Enbridge's case, the data pertain to our Enbridge Pipelines Inc., Westpur, and Norman Wells pipelines.

## 2. U.S. (LP)

According to data from the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA), between 2011 and 2013, we operated approximately 11.5 per cent of the pipelines in the U.S. While we increased the number of miles of crude oil pipelines that we operate by approximately 41 per cent over the past 10 years, between 2004 and 2013 (the 2013 mileage is based on 2012 figures), the rest of the U.S. pipeline industry increased its number by approximately 16 per cent.

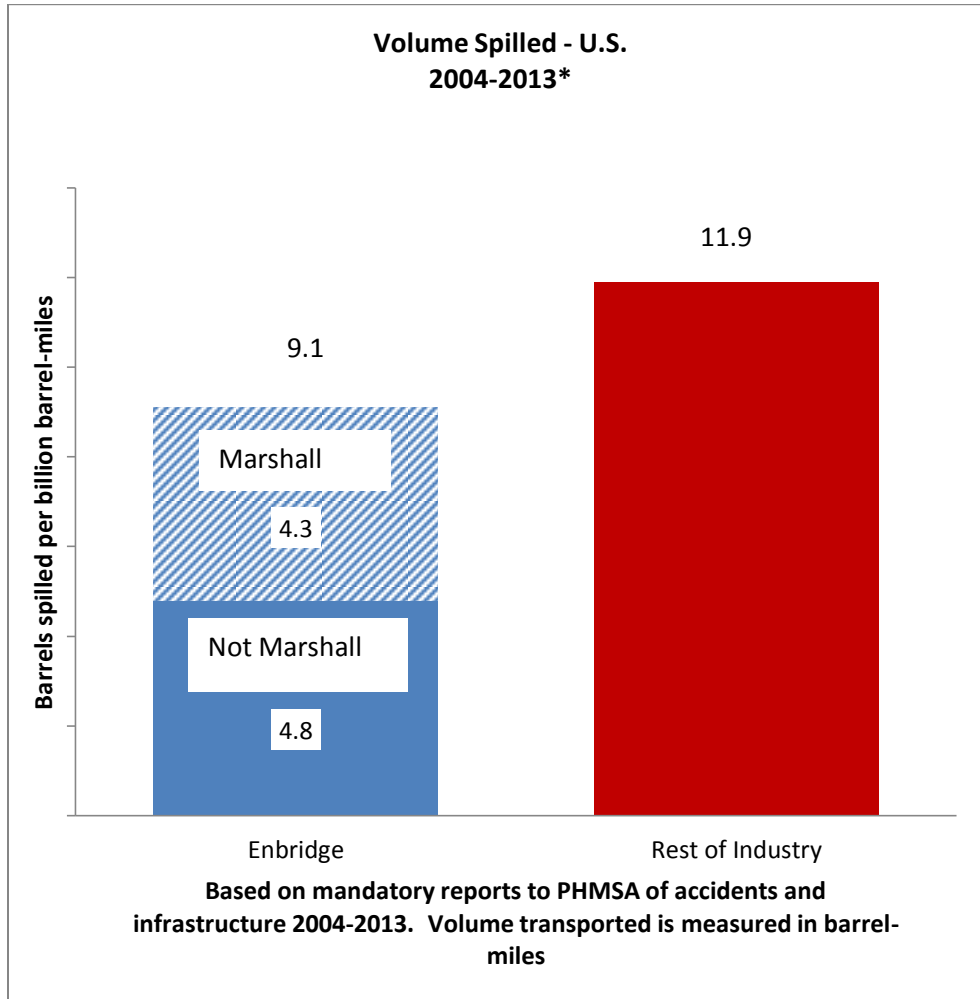
- a. **Spill Frequency:** From 2004 to 2013, we experienced 0.007 spills per billion barrel-miles, compared with an average 0.026 spills per billion barrel-miles for the rest of industry. **Our spill frequency was about 75 per cent better than that of the rest of the industry.**



\* Spills from onshore pipelines, including valve sites. Spills that took place within stations or terminals on company property are excluded from the data. The data include spills of five barrels or more, or those involving a release to water, death, injury, fire explosion or damages exceeding US \$50,000; for smaller spills, operators were not required to specify the part of the system, such as onshore pipelines, including valve sites until 2010. "Frequency of Spills" is the number of events. "Volume Transported" refers to the total amount of petroleum liquids shipped in the U.S. between 2004 and 2013 in billion barrel-mile units. This bar graph shows the relationship between Enbridge's spill frequency per volume transported and that of the rest of the U.S. liquids pipeline industry. This comparison is based on data available through PHMSA's databases for its mandatory accident and mileage reports from operators (Forms 7000-1 and 7000-1.1).



- b. **Spill Volume:** Due to the spill volumes associated with our 2010 Marshall spill, our spill volume between 2004 and 2013 was comparable to the average spill volume of the rest of the U.S. liquids pipeline industry (i.e. not including Enbridge).



\* Spills from onshore pipelines, including valve sites. Spills that took place within stations or terminals on company property are excluded from the data. The data include spills of five barrels or more, or those involving a spill to water, death, injury, fire explosion or damages exceeding US \$50,000; for smaller spills, operators were not required to specify the part of the system, such as onshore pipelines, including valve sites until 2010. "Volume Spilled" is the number of barrels spilled. "Volume Transported" refers to the total amount of petroleum liquids shipped in the U.S. between 2003 and 2013 in billion barrel-mile units. The resulting bar graph shows the relationship between Enbridge's spill ratio and that of the industry. This comparison is based on the data available through U.S. Department of Transportation databases for its mandatory accident and mileage reports from operators (Forms 7000-1 and 7000-1.1).

### For More Information

Please see the [Asset Integrity and Reliability data sheet](#) on [www.csr.enbridge.com](http://www.csr.enbridge.com). Please also see Enbridge's December 2013 [Operational Reliability Review](#).