New South Wales

2017-18 Licensed Pipelines Performance Report
This report was prepared by the NSW Department of Planning & Environment - Division of Energy, Water & Portfolio Strategy. Further information on reporting parameters is available on the Department’s website: http://www.energy.nsw.gov.au

Enquiries regarding this report should be addressed to:

Manager, Safety & Technical Regulation
NSW Department of Planning & Environment
PO Box 435
Parramatta NSW 2124

Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing and may not be accurate, current or complete. The State of New South Wales (including the NSW Department of Planning & Environment, the author and the publisher) take no responsibility, and will accept no liability, for the accuracy, currency, reliability or correctness of any information included in the document (including material provided by third parties). Readers should make their own enquiries and rely on their own advice when making decisions related to material contained in this publication.

© State of New South Wales through Department of Planning & Environment 2019. This publication is copyright. You may download, display, print and reproduce this material provided that the wording is reproduced exactly, the source is acknowledged, and the copyright, update address and disclaimer notice are retained.
# Table of Contents

Executive Summary ......................................................................................... 1
1. Introduction ............................................................................................... 2
2. Accidents, escapes and ignitions .............................................................. 3
3. Integrity assessment / monitoring .............................................................. 6
4. Operational performance .......................................................................... 8
5. Conclusion ................................................................................................. 9
Executive Summary

The aim of this Annual Performance Report (the Report) is to assess the performance of NSW licensed pipeline operators in implementing their pipeline management systems as required by the Pipelines Act 1967, the supporting Pipelines Regulation 2013, the Australian Standard 2885 – Pipelines gas and liquid petroleum (AS 2885) and other criteria set by the NSW Department of Planning & Environment – Energy Operations Section (the Department). The Department can then identify any opportunities for improvement to ensure that security of supply is maintained and that risks to the public and environment are kept As Low As Reasonably Practicable (ALARP). ALARP refers to the process of minimising the risks of adverse events and is incorporated in the AS 2885.

All pipeline licensees have reported their performance figures to the Department, which are aggregated in this Report, along with the previous four years’ figures.

In consultation with the pipeline licensees, the Department developed an annual reporting template which relates to technical performance, asset integrity and reliability. The previous years’ performance reports can be viewed on the Department’s website.

In 2017-18 there were 31 licensed pipelines operating in NSW, covering more than 4,800 kilometres. These pipelines convey mainly gas and petroleum products, such as jet fuel for the Sydney International Airport. There is one water pipeline which is not included in this report.

This year’s report reveals one (unplanned) loss of operations (for 76 hours) and two losses of containment but no ignitions and no serious injuries or fatalities reported during the 2017-18 period.

The Report provides an overview of safety performance, pipeline management systems and asset management activities for the pipelines in 2017-18. Some revised figures from past reports may be reflected in this Report.

To ensure the maximum value is obtained from the Report, the reporting processes and content are reviewed on an ongoing basis in consultation with the pipeline licensees and operators.
1. Introduction

This Performance Report is based on the 2011 reporting template, developed by the Department in consultation with the pipeline licensees. It covers licensed pipelines in NSW and is presented on an aggregate basis from the individual Annual Performance Reports submitted by the licensees.

The Report presents information on the potential public safety hazards associated with pipelines and provides an overview of the key performance indicators (KPIs) the Department monitors to ensure that any such risks are kept to a minimum.

The individual performance reports are made by pipeline licensees in accordance with the reporting requirements in the Pipelines Regulation 2013 (the Regulation).

The current Regulation contains a number of significant changes from the 2005 version. Clause 11 of the Regulation requires licensees to implement a pipeline management system (PMS), which is in accordance with the relevant provisions AS 2885. AS 2885 is a series of standards for design, construction, welding, operation and maintenance for gas or petroleum pipelines that reflects international Best Practice for the pipelines industry. The PMS replaces the Safety and Operating Plan in the 2005 Regulation.

Clause 11 states:

*Pipeline Management System to accord with AS 2885 - A licensee must implement a pipeline management system that relates to the pipeline operated under the licence and is in accordance with the relevant provisions of AS 2885.*

The NSW Government has the power to prosecute parties who fail to comply with the Regulation. The Regulation also contains significant penalties for damaging critical infrastructure assets or interrupting gas supplies.

The Department’s approach to safety regulation is outcomes based. This approach focuses on desired outcomes rather than the means for achieving those outcomes. This allows for flexibility by pipeline operators in their KPI approaches and encourages innovation by the licensees.

The reporting requirements examine actions taken to prevent any loss of containment from pipelines, as nearly all licensed pipelines are considered to form a crucial part of the NSW energy infrastructure. The Department’s primary focus, through the reporting process, is to prevent incidents from occurring and to foster effective risk minimisation and risk management practices.

The reporting requirements for licensed pipelines are broken into three categories:

* Accidents / Escapes / Ignitions
* Integrity Assessment / Monitoring
* Operational Performance

Each of these categories require different actions to provide protection, but the combination of all actions should ensure the safety and integrity of the pipeline assets.
2. Accidents, escapes and ignitions

This section of the Report deals with accidents, escapes, ignitions and injuries or property damage. Incidents occurring on high pressure pipelines can have significant consequences and may result in serious harm to people, property and/or the environment.

The items that are reported within this section are:
- Near Misses
- Incidents\(^1\)
- Loss of Containment (LOC)
- Ignitions
- Injuries\(^2\)
- Property damage.

A detailed definition of the above items is located in the reporting template, available on the website: energy.nsw.gov.au.

The main KPIs are identified below in Table 2.1 and shown in Chart 2.1 and the black KPIs are shown is Chart 2.2.

**Table 2.1 Key performance indicators** [Blue columns shown in Chart 2.1]

<table>
<thead>
<tr>
<th>Year</th>
<th>Near misses per 1,000 km</th>
<th>Incidents per 1,000 km</th>
<th>Loss of Containment events per 1,000 km</th>
<th>Ignitions per 1,000 km</th>
<th>Injuries per 1,000 km</th>
<th>Damage events per 1,000 km</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>1.23</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.21</td>
<td>0</td>
</tr>
<tr>
<td>2014-15</td>
<td>1.64</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2015-16</td>
<td>1.64</td>
<td>0.41</td>
<td>0</td>
<td>0</td>
<td>0.20</td>
<td>0</td>
</tr>
<tr>
<td>2016-17</td>
<td>3.25</td>
<td>1.02</td>
<td>0</td>
<td>0</td>
<td>0.41</td>
<td>0</td>
</tr>
<tr>
<td>2017-18</td>
<td>13.63</td>
<td>1.42</td>
<td>0.41</td>
<td>0</td>
<td>0.2</td>
<td>0</td>
</tr>
</tbody>
</table>

\(^1\) Incident - Any third party activity where contact is made with the pipeline, whether or not the pipeline suffers a loss of containment and/or damage.

\(^2\) Injury - A person is injured and the pipeline or the pipeline easement area has played a part in the incident occurring.
The increase in near misses and incidents is most likely the result of an increase in construction activity near pipeline easements, more frequent pipeline patrols and better reporting by pipeline operators.

Injuries on licenced pipelines have remained low over the past five years, with less than one injury per 1,000 km.
The Chart below displays an index of the total number of loss of containment (LOC) incidents calculated as a time-weighted average per 1,000 kilometres of pipeline. This index is an internationally recognised measure of pipeline performance and reliability.

\[
LOC \text{ Index} = \frac{\text{Total No LOC incidents}}{\text{Time weighted average}^* \text{ per 1,000 kms pipeline}}
\]

* time weighting by number of years each pipeline has been operating

**Chart 2.3 Loss of Containment Index**

This chart highlights the number of loss of containment events relative to the length of the pipeline and the number of years it has been operating. The pipeline length represents the total length of all NSW licenced pipelines. A lower LOC Index means fewer losses of containment.

The slight increase in 2017-18 was a consequence of a liquid fuel pipeline leak and a natural gas pipeline valve leak, both occurring in late 2017.
3. Integrity assessment / monitoring

This section reports on the integrity of pipelines and the monitoring activities that are performed to reduce the possibility of accidents or incidents occurring on or around pipelines.

The KPIs reported within this section are:

- Integrity Assessment
- In-line Inspections
- Field Inspections
- Corrosion Protection (CP)
- Pipeline Patrols
- One-Call Systems
- Supervised 3rd party activity around the Pipeline
- Coating Defects
- Landowner Liaison

A detailed definition on the above terms and what is required to be reported is available within the reporting template which is available on the energy website: www.energy.nsw.gov.au.

The main KPIs are identified below in the Table 3.1

Table 3.1. Key performance indicators

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Supervised Activities per 1,000 km</th>
<th>Percentage that contacted “One-Call” system</th>
<th>Defects identified requiring attention per 1,000 km</th>
<th>Percentage of Landowners Contacted</th>
<th>Percentage of CP units operating correctly</th>
<th>Percentage of pipeline covered by CP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>1,706.87</td>
<td>96.08%</td>
<td>56.66</td>
<td>98.61%</td>
<td>100%</td>
<td>99.44%</td>
</tr>
<tr>
<td>2014-15</td>
<td>1,622.64</td>
<td>95.89%</td>
<td>109.94</td>
<td>99.44%</td>
<td>93.43%</td>
<td>99.37%</td>
</tr>
<tr>
<td>2015-16</td>
<td>1,058.46</td>
<td>95.55%</td>
<td>64.44</td>
<td>97.02%</td>
<td>99.53%</td>
<td>99.99%</td>
</tr>
<tr>
<td>2016-17</td>
<td>1,412.44</td>
<td>99.41%</td>
<td>59.42</td>
<td>98.12%</td>
<td>99.54%</td>
<td>99.43%</td>
</tr>
<tr>
<td>2017-18</td>
<td>589.26</td>
<td>99.42%</td>
<td>41.31</td>
<td>89.68%</td>
<td>100%</td>
<td>99.99%</td>
</tr>
</tbody>
</table>

The apparent decrease in Supervised Activities per 1,000 km in 2017-18 is the result of more accurate reporting and excluding activities near unlicensed pipelines which have been included in past years. The overall number of supervised activities, including activities on network trunk-mains, would be similar to 2016-17 if reported on the same basis.

3 Before 2017-18 these figures include licensed and unlicensed pipelines, such as gas distribution mains.
New South Wales legislation requires third parties, or contractors, to contact the One-Call system (“1100”) prior to any excavation or work near assets. This is helping to prevent serious incidents. Although a small percentage of contractors are not using this service, over 99% of the time notification was made via the One-Call system. Overall, NSW pipeline operators continue to operate their assets in a safe and reliable manner with all KPIs remaining strong.

Note: There is no easement landowners contact frequency specified in AS 2885 but the department encourages pipeline operators to contact landowners on an annual basis.

Chart 3.1 Integrity activities and monitoring

This chart reveals that the integrity indicators for pipelines remained within acceptable levels for 2017-18. Although AS2885 only requires regular contact with landowners, operators are encouraged to contact all land owners on an annual basis.

Chart 3.2 Third party activities supervised by pipeline operators per 1,000 km

Data reported from 2013-14 to 2016-17 included activities near some gas networks, gas mains and unlicensed pipelines for a major pipeline operator. The apparent fall in 2017-18 is therefore the result of changes in reporting rather that a decrease in actual supervised activities.
4. Operational performance

Pipeline operational performance monitoring is important as this action maintains what is recognised as ALARP procedures to mitigate incidents.

The KPIs reported within this section are:
- Loss of Operations (unplanned interruptions)
- Details of any unplanned or abnormal incidents that could have a long-term effect on the safety on the pipeline
- Emergency Simulations
- Non-compliances identified by the independent auditor

A more detailed definition on the above terms and what is required to be reported is available within the reporting template on the website: energy.nsw.gov.au.

The main KPIs are identified below in the Table 4.1 and in Chart 4.1 below.

Table 4.1 Pipeline operations events

<table>
<thead>
<tr>
<th>Year</th>
<th>Hours not operational</th>
<th>Lost operations per 1,000 km</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>6</td>
<td>1.2</td>
</tr>
<tr>
<td>2014-15</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2015-16</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>2016-17</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>2017-18</td>
<td>76</td>
<td>15.4</td>
</tr>
</tbody>
</table>

Chart 4.1 Lost operations per 1,000 km

The increase in lost operations per 1,000 km was the result of emergency repairs for a leak in a liquid fuel pipeline in early 2018. The cause of the leak was investigated by the pipeline operator and appropriate corrective actions were undertaken.

Emergency simulations & non-compliance

NSW licenced pipeline operators are required to conduct annual emergency simulations and are also required to conduct annual audits of their Pipeline Management System by an independent auditor.
These figures are shown in Table 4.2 and Chart 4.2. Any areas of non-compliance or opportunities for improvement found by the auditor must be actioned as soon as practicable, as specified in the corrective action plan.

**Table 4.2 Emergency simulations and non-compliance**

<table>
<thead>
<tr>
<th>Year</th>
<th>Emergency Simulations</th>
<th>Audit Non-compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013-14</td>
<td>24</td>
<td>11</td>
</tr>
<tr>
<td>2014-15</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>2015-16</td>
<td>18</td>
<td>32</td>
</tr>
<tr>
<td>2016-17</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>2017-18</td>
<td>22</td>
<td>23</td>
</tr>
</tbody>
</table>

These figures are also shown in Chart 4.2.

**Chart 4.2 Emergency simulations and non-compliance**

The non-compliance issues revealed in annual audits are most often minor or administrative matters which are easily rectified by the operators. The Department also meets with the licensee to ensure that the corrective actions are taken within an appropriate timeframe.

5. **Conclusion**

The main objective of the NSW regulatory framework for licenced pipelines is to achieve safe and reliable operations by pipeline operators and to protect the workers, the public and the environment.

Based on the statistics contained within this report⁴, we can conclude these objectives have, for the most part, been met and that NSW pipeline operators continue to manage their assets in a safe and reliable manner, providing a quality supply of gas, petroleum and other products to consumers.

---

⁴ Some data revisions from past reports are reflected in this report.