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Creating a safer state with electricity and gas

Key Performance Indicators Specifications

Victorian Licensed Pipelines Industry Group (Non-Natural Gas Transmission) reporting requirements

VICTORIA State Government

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Contents

1 Background and Brief

Energy Safe Victoria (ESV) is the independent regulator responsible for electricity, gas and pipeline safety in Victoria, and compliance with relevant legislation (such as the Pipelines Act and Pipelines Regulations).

This role includes the regulation of licensed transmission pipelines, which involves:

- accepting industry's safety cases and Safety Management Plans for the design, construction and operation of licensed pipeline networks across Victoria
- administering legislation covering licensed pipelines and enforcing technical standards requirements
- monitoring the safety and integrity of pipelines and their associated assets
- engaging with industry stakeholders to address emerging risks.

1.1 Key performance indicator information specification

ESV and the Licensed Pipelines Industry Group (Non-Natural Gas Transmission) are adopting a more proactive approach to provide transparency and visible monitoring of Victoria's transmission pipeline assets. As a result, a need has been identified for a series of indicators that will provide an ongoing and proactive signal about transmission pipeline system safety, integrity, and possible risk.

The purpose of the information specification is to:

- establish the reporting requirements for this industry group
- outline the key performance indicators (KPI) that have been developed
- provide a guideline for how the KPIs are to be submitted.

The purpose of the KPIs

ESV has collaborated with stakeholders to develop a list of KPIs that provide a snapshot of pipeline safety and integrity trends rather than relying on outcome-based reporting. The objective was to agree a complete set of KPIs that will proactively show:

- the historical perspective (what has happened)
- current trends indicating possible risks (what may happen).

In particular, the KPIs have been designed to assist ESV and its stakeholders with developing action plans to:

- maintain and increase the safety compliance of the pipeline industry
- proactively identify pipeline industry trends and emerging risks
- provide a level of assurance that risks are being managed and controls are effective.

KPI design

The KPIs are designed to cover a series of risk categories involving:

- damage by third parties or external interference
- corrosion protection
- materials failure[1].

[1] Materials failure within facility compounds has been reported as extremely rare, and the group deemed the risk to be sufficient to decide that existing engineering design controls and monitoring is satisfactory to monitor this risk. Despite this, legislated reporting requirements continue to apply within the facility compound. Should circumstances arise that impact the integrity of Victorian pipeline materials, this decision may be reviewed and changed.

Reporting

KPI data will be reported by each organisation (to ESV mailbox: esvreportsgpis@energysafe.vic.gov.au) within 20 business days of the end of each quarter using a spread sheet template circulated by ESV.

The collated information will be reported[2] to the relevant State Government Minister, ESV management, stakeholders, and the public (via annual reports).

About the Licensed Pipelines Industry Group (Non-Natural Gas Transmission)

The Licensed Pipelines Industry Group, involving non-natural gas licensed transmission pipelines in Victoria, is characterised by:

- businesses operating licensed transmission pipelines conveying non-sales gas petroleum product
- businesses operating pipelines for the conveyance of oxygen, carbon dioxide, hydrogen, nitrogen, compressed air, sulphuric acid or methanol through the pipeline
- any pipeline declared under section 11 of the Pipelines Act.

Appendix 1 lists the members of this industry group involved in the development of the KPIs for non-natural gas transmission pipeline licensees.

[2] In raw form or in aggregate.

2 KPI Development and Categorisation

The KPIs for the Licensed Pipelines Industry Group (Non-Natural Gas Transmission), which will provide an overview of the ongoing management of risk and provide input into ESV's annual audit plan:

- were established after consultation between the industry group and ESV
- are the outcome of a pragmatic approach towards meeting the Regulator's need to monitor safety performance and the industry group's ability to extract the information required.

2.1 Development

The majority of the KPIs have been developed to enable the measurement of an organisation's compliance with its Safety Management Plan, and will need to evolve over time to account for:

- newly identified risks or changing social and regulatory attitudes
- new asset management practises and technologies
- the degree to which the KPIs meet their objective.

The KPIs may also require some additional context to establish proactive trends, especially where comparatively shorter pipeline assets in regional or remote areas are involved, and should be reviewed on a more regular basis for suitability and effectiveness (preferably every two years).

2.2 Categorisation

After a review of relevant literature[3], a ranking of pipeline risks has been identified that formed the basis for the KPI categories (and the definition of what is reportable under each one):

- Number of Incidents
- Potential Survey
- Visual Inspection Above Ground
- Safety Critical Equipment Maintenance
- Pipeline Interference
- Pressure Excursion
- Community Liaison

2.2.1 Number of Incidents

This KPI incorporates four components[4]:

- Number of pipeline damage incidents.

  Any incident causing damage to the pipeline (whether or not the pipeline suffers a loss of containment or the works were approved/supervised by the licensee)[5].

[3] US Pipeline and Hazardous Materials Safety Administration, Guidance1 for Strengthening Pipeline Safety Through Rigorous Program Evaluation and Meaningful Metrics, October 2014.

Pipeline Integrity Management Programs, Ray Goodfellow, IRISNDT. NSW Licensed Pipeline Performance Reporting Guidelines, January 2012.

ExxonMobil Australia, Process Safety – Leading Indicators, Michael Baker.

Pipeline integrity in the gas industry, 7th Annual Pipeline Integrity Management Forum, Technical Association of the European Natural Gas Industry, February 2014.

[4] In accordance with the Gas Safety (Safety Case) Regulations, incidents as defined by legislation will be reported to ESV as soon as practicable.

[5] This includes coating damage.

- Number of unauthorised excavations, construction, or boring within 3 metres.

  Any unauthorised excavation, construction, or boring within 3 metres of a licensed pipeline as defined by the legislation. Unauthorised activity includes any excavation where the licensee has not provided written consent (to excavate).

- Number of major leaks

  An unplanned product release from the pipeline as defined by the license and requiring a mechanical repair (being the application of a sleeve, weld, or other)[6].

- Number of minor leaks

  An unplanned product release from the pipeline as defined by the license and requiring a maintenance repair including but not limited to the non-routine maintenance of leaking valves and flanges.

2.2.2 Potential Survey

This KPI involves assessing the following:

- Number of Potential Surveys - PIMP requirement.

  This is the number of potential surveys required to be undertaken as per the Pipeline Integrity Management Plan (PIMP).

- Number of Potential Surveys – completed.

  This is the number of potential surveys completed.

- Number of non-compliant CP test points.

  This is the number of non-complaint CP test points in accordance with AS2832.1.

2.2.3 Visual Inspection Above Ground

This KPI involves but is not limited to assessing the following:

- Pipeline above/below ground transition point
- Easement management
- Surface corrosion
- Pipeline coating/paintwork and insulation (i.e cladding)
- Pipeline supports

This KPI incorporates two components:

- Number of visual inspections – PIMP requirement:

  The number of visual inspections required to be undertaken as per the PIMP

- Number of visual inspections – completed:

  The number of visual inspections completed.

2.2.4 Safety Critical Equipment Maintenance

This KPI involves maintenance of safety critical equipment as identified in the Safety Management Plan and includes equipment that may affect the safety of pipeline operation.

[6] Non-mechanical remediation involving a repair plug or wrap.

- Number of safety critical equipment maintenance – PIMP requirement.

  This is the number of safety critical equipment maintenance required to be undertaken as per the PIMP.

- Number of safety critical equipment maintenance – completed.

  This is the number of safety critical equipment maintenance completed.

2.2.5 Pipeline Interference

This KPI incorporates four components:

- Number of Pipeline Patrols[7] - SMP requirement.

  This refers to pipeline patrolling undertaken by competent personnel to ensure external threats are identified and managed. The frequency of patrolling will be measured in accordance with Safety Management Plan requirements. (For example, monthly aerial patrols, daily vehicle patrols, etc.)

- Number of Pipeline Patrols - completed.

  The number of Pipeline Patrols that were completed

- Number of Dial Before You Dig responses.

  This is the number of Dial Before You Dig (DBYD) responses provided by the licensee (including automated responses).

- Number of Conditions of Work issued.

  This refers to conditions of work a specific safety plan, restriction, and/or conditions that are imposed by the licensee[8].

- Number of breaches of Conditions of Work.

  The number of breaches of work refers to the event where work is breached, rather than the number of specific conditions that are breached. These breaches of conditions of work being an incident that is reported internally by the licensee, whether or not it is a reportable incident (to ESV) as per the legislation.

2.2.6 Pressure Excursion

The pressure excursion KPI incorporates two components:

- Number of instances exceeding MAOP Steady-State Conditions.

  This is the number of pressure excursions exceeding the license condition (MAOP) for steady-state conditions.

- Number of instances exceeding 110% MAOP Transient Conditions.

  This is the number of pressure excursions exceeding 110% of the MAOP for transient conditions[9].

[7] For below ground assets.

[8] The number of conditions of works issued refers to the event, rather than the number of specific clauses. (E.g. contractor installing communication cables in proximity would be reported as one event)

[9] Transient pressure is the over-pressure associated with an unsteady flow situation when flow changes from one steady-state situation to another. A transient event is typically measured in seconds for liquids and, depending on the size of the pipeline, seconds, minutes or perhaps a few hours for gases.

2.2.7 Community Liaison

Licensees are required to have an established community/stakeholder liaison program to proactively communicate the presence of pipelines and the importance of their integrity. Community/stakeholder liaison activities are a key pre-requisite for risk management and the prevention of external interference activities.

A qualifying community liaison includes proactive communication that involves:

- raising awareness about the location of a pipeline
- precautions that must be taken to prevent interference with a pipeline.

The method of liaison will include but is not limited to:

- information pack mail-outs
- face-to-face meetings
- person-to-person calls.

The Community Liaison KPI incorporates three components:

- Number of land owner and occupier communications

  This refers to any individual or organisation that owns/occupies a property traversed by a licensed pipeline.

- Number of third party communications

  This refers to any individual or organisation that does not have a legal transaction with the relevant asset owner.

- Number of council communications

  This involves any representative from a council's planning department and maintenance/engineering department and measured in accordance with the number of municipalities a licensed pipeline traverses.

Community Liaison reporting agreements

The industry group nominated a number of other useful Community Liaison KPI inputs that are only relevant to particular asset types that include:

- Number of land owners and occupiers contacted face-to-face
- Number of third parties contacted face-to-face
- Number of councils contacted face-to-face.

As agreed with the industry group:

- These KPI inputs will be used to indicate the degree of personal contact and its effectiveness at reducing incidents (as reported).
- The results may be reported by ESV as an industry aggregate (not by company).

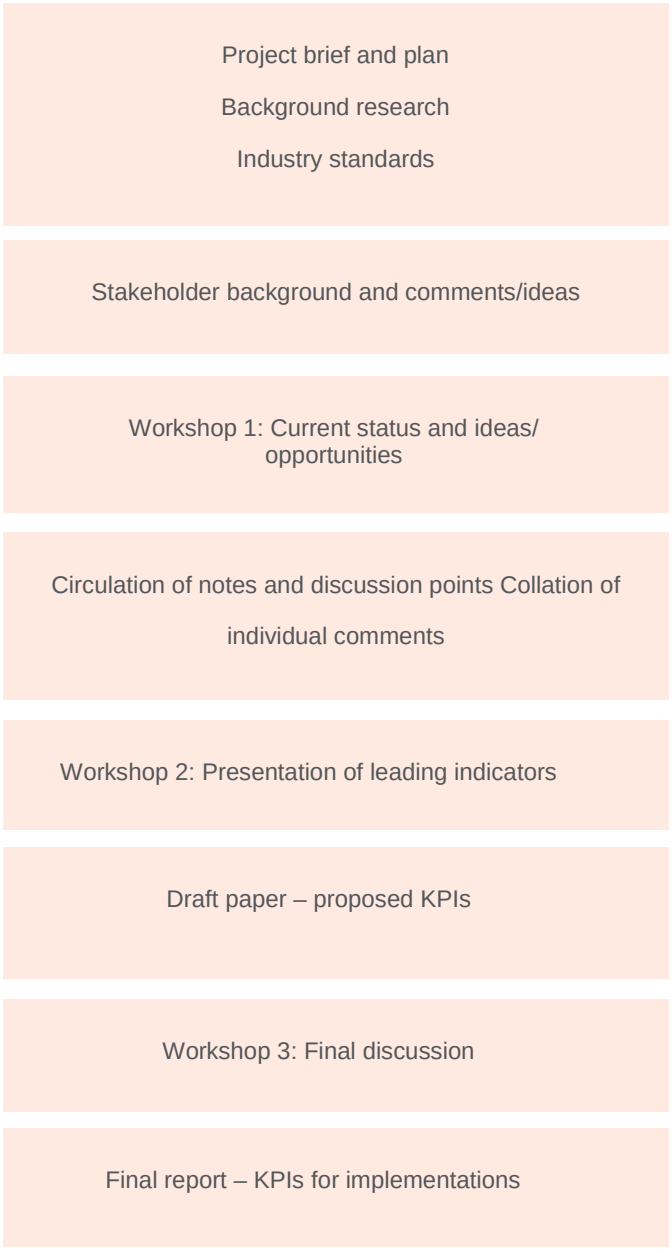
Community Liaison reporting timeframes

Community Liaison KPIs will be reported annually (at the end of the financial year) [10] in accordance with the relevant safety case.

[10] As opposed to the other KPIs, which are currently reported quarterly.

3 Project Process

The stakeholders involved in this process included representatives from ESV and the Licensed Pipelines Industry Group (Non-Natural Gas Transmission) as shown in Appendix 1, which adopted the following consultative process approach:



The review also used the KPIs of other, non-associated organisations (both in Australia and overseas) as a guide to selecting the final KPI list. KPIs will be used to facilitate the analysis of trends rather than give an absolute measure of performance. The list will be regularly reviewed to determine whether the new:

- incidents, risks, engineering, and operating standards and issues suggest alternative KPIs are needed for proactive pipeline integrity management
- KPIs are achieving the original project objectives.

4 Appendix 1 – Workshop Attendees

Members of the Licensed Pipelines Industry Group (Non-Natural Gas Transmission) that attended workshops to develop the KPIs for non-natural gas transmission pipeline licensees included the following:

BHP Billiton Ltd
BOC Ltd
Caltex Australia Petroleum Pty Ltd
Chemicals Australia Operations Pty Ltd (IXOM)
Cooper Energy Ltd
Elgas Ltd
Esso Australia Pty Ltd
Exxon Mobil Aviation
Mobil Oil Australia Pty Ltd
Mobil Refining Australia Pty Ltd
Qenos Pty Ltd
United Terminals Pty Ltd
Viva Energy Australia Ltd

5 Appendix 2 – Reporting Template