

Gas and Pipeline Infrastructure Safety Management Report

2017–18



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Industry Overview



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Director's report

This is the fifth year that Energy Safe Victoria (ESV) has produced the Gas & Pipeline Infrastructure Safety Management Report and follows much work done in conjunction with the gas and pipeline industry groups this year. Recommendations and findings arising from the Independent Review of Victoria's Electricity and Gas Network Safety Framework released on 1 August 2018 provided strong support for our strategy to provide regulatory assurance based on good audit, inspection and investigation practises, underpinned by an enhanced data collection and analysis regime.

This comes at a time when many sectors and industries are taking note of the problems that have been uncovered within Australia's financial institutions and how over many years pressure from various groups, including an investigation conducted by the Australian Prudential Regulation Authority (APRA) targeting governance, culture, and accountability, opened the door for a Banking Royal Commission. It comes as no surprise that many of the problems uncovered related to management and board oversight and incentives, as well as risk appetites and cultures.

The Royal Commission exposed many examples of weaknesses relating to the way issues, incidents and risks were being identified and escalated, and the frameworks established for managing them. This in turn led to a series of important questions about regulation, including the role of enforceable undertakings.

The Royal Commission has also given voice to a higher expectation of prosecution in enforcement action and at least one measure of success being the number of successful prosecutions undertaken. Dr Paul Grimes in his Network Safety Review noted that it was the preparedness and demonstrated capacity to prosecute that was important. We agree with that observation and note that enforceable undertakings also remain an important, timely and cost-effective tool in the regulator's enforcement kit bag.

Enforcement aside, regulators must continually test, challenge and expose how network businesses build and support deep safety and risk cultures, instil safety and risk considerations within organisational systems and processes, and foster highly engaged leadership from the board and chief executive level down.

To do this, we must maintain active and positive engagement with industry as well as undertaking our primary regulatory roles to license, accept, audit, inspect and enforce the Acts and Regulations. In so doing, communication and consultation are paramount, as ESV seeks to understand the perspectives of the industries most affected by its decisions. In turn, ESV is implementing more transparent policies and guidelines that aim to build industry's confidence in ESV's regulatory approach and processes, and the effectiveness of its engagement with the industries it regulates.

I commend this Gas & Pipeline Infrastructure Safety Management Report for 2017-18.



Paul Fearon
Director of Energy Safety

General Manager's report

(Gas and Pipeline Safety and Technical Regulation)

Since it was first introduced in 2013, the Gas and Pipeline Safety Management Report has sought to cover more than just safety outcomes by focussing on various aspects of safety management, and in particular on the mechanics and systems that assure ESV that risk is being effectively managed and mitigated. Similarly, the necessary drivers underpinning a deeply ingrained safety culture rely on the existence of robust governance systems as well as on their ongoing implementation.

Each regulated entity has the responsibility to undertake its own internal governance system health checks, and while ESV continues to monitor their effectiveness, their failure (in whole or part) is ESV's largest concern. ESV has investigated a number of serious incidents this year—one of which resulted in an injury, which is an unacceptable outcome—where governance system failure has been a factor. While it has been encouraging to see an increasing level of engagement when it comes to addressing these shortcomings and sharing the lessons learned, more can still be done to prevent death, injury, and damage to property and the environment.

In addition to the intelligence gathered from incident investigations, ESV's contractor management audit program, which provides insight into the methodologies being used to ensure successful operational oversight, continues to identify asset management deficiencies from insufficient oversight and a lack of established systems. For example, while only one injury occurred during the reporting period, which is still of concern to ESV, the high number of near misses confirms an underlying issue that often involves maintenance and servicing contractors working on behalf of asset owners.

As a result, ESV is adapting its regulatory approach by complementing its mains and services strategy initiative with an increasing physical presence in the field, resulting in more inspections and audits than ever before. This aims to test, challenge and expose natural gas distribution business accountability for the workmanship of contractors performing construction and maintenance on their behalf and that mitigation measures are in place to reduce third party interference with natural gas distribution infrastructure and licensed pipelines.

Increasing the inspection and audit program also works to strengthen ESV's industry intelligence. Information acquired through audits and field inspections feeds into various data gathering approaches and has been a key element of the Gas Asset Damage Mitigation Project as well as providing input into ESV's strategic audit plan.

A focused approach to data gathering and intelligence has also enabled ESV to complete its review of the Licensed Pipeline Industry Group's key performance indicators (KPIs), which was partly prompted by investigations involving incidents like the Dromana to Rye pipeline accident, where the failure of controls being managed by the contractor on behalf of the asset owner was a factor. Forming a key part of ESV's proactive approach to monitoring the safe operation of Victoria's transmission pipeline assets, a new focus on quantifiable KPI measures is designed to provide leading rather than lagging indicators about transmission pipeline safety, integrity, and risk. In addition to providing a snapshot of trends in pipeline safety and integrity, the new KPIs will also enable ESV to inform industry about its performance status both individually and collectively. It is also anticipated that the successful transition to quantifiable reporting of KPIs will collectively guide ESV and industry as well as influencing strategic safety goals overall.

In conjunction with its data gathering and intelligence capabilities, ESV is well positioned to act on the systemic deficiencies it identifies. While aiming to be a proactive regulator, ESV must also manage its preparedness to take strong regulatory action if necessary. As such, ESV is developing enforcement strategies to bring targeted regulatory pressure to bear so as to influence effective outcomes. This has led to an increased number of investigations, with a particular focus on third party interference, which ESV continues to recognise as the most frequent reportable incident type associated with the greatest potential for harm.

Following on from this year's initiatives, ESV will continue to positively engage with regulated entities and will concentrate on systems that assure risk is being effectively managed and mitigated. This includes focussing on cathodic protection (as ineffective cathodic protection can allow a pipeline to corrode and fail) and field inspections (to ensure works accord with approved and specified procedures and are performed by trained and competent staff). This approach supports accurate and transparent enforcement messaging, understanding of the escalation process (and the consequences that may arise from noncompliance), and how enforcement fits into the overall legislative compliance framework.



Steve Cronin
General Manager
Gas and Pipeline Safety and Technical Regulation

1. Introduction

Energy Safe Victoria (ESV) is the regulator responsible for the technical regulation and safety of Victoria's pipelines and electricity and gas sectors.

ESV's vision for Victoria is for community, industry and regulators to share a strong commitment to the safety of its pipelines, and the safe and efficient supply and use of electricity and gas for the benefit of the whole community.

By global standards, the Australian gas and pipeline industry has an excellent record of safety performance, monitoring and training. While its primary role is to encourage compliance and improved safety performance throughout Victoria's pipeline, electricity, and gas sectors, ESV performs its functions and exercises its authority to achieve and maintain the objectives stated by the *Electricity Safety Act 1998*, the *Gas Safety Act 1997*, and the applicable objectives of the *Pipelines Act 2005*.

ESV also continues to focus attention on ongoing and long-term safety outcomes, while responding to emerging risks and issues via its accident prevention and compliance activities, educational initiatives, and cooperative partnerships. ESV's Corporate Plan and Annual Report also provide information about ESV's aims and objectives¹.

In terms of ESV's broader functions, the Gas & Pipeline Infrastructure (GPI) Safety Section is responsible for the industry groups that are the subject of this report. These include natural gas transmission pipelines and non-natural gas pipelines, the Australian Energy Market Operator (AEMO), natural gas distribution, reticulated liquefied petroleum gas (LP GAS), landfill biogas, liquefied natural gas (LNG), compressed natural gas (CNG), and natural gas and LP GAS retailers.

The GPI Safety Management Report

The 2017-18 GPI Safety Management Report (covering the Licensed Pipelines, Non-licensed Gas Infrastructure, and Natural Gas Retail industry groups for the reporting period 1 July 2017 to 30 June 2018) delivers an overview of industry regulatory compliance by:

- providing information about safety performance trends over time
- informing government and the community about compliance activities conducted by regulated entities
- assuring the community about ESV's role in exercising strategic leadership and facilitating safety compliance
- reporting on and evaluating the outcomes of risk-based regulation and taking proportionate enforcement action.

¹ <https://www.esv.vic.gov.au/about-esv/reports-and-publications/>

2. Ensuring compliance and the regulatory response

ESV's compliance and enforcement strategy has two limbs:

- Encouraging and facilitating cooperation with organisations willing to comply.
- Taking proportionate enforcement action against organisations unwilling to comply.

ESV uses the enforcement pyramid, which is a regulatory approach advocated by Ayers and Braithwaite^{2,3} for:

- selecting compliance tools for a particular task
- progressive escalation of compliance issues (educate, encourage, warn, enforce, prosecute).

Figure 2.1 shows the common representation⁴ of the enforcement pyramid, which starts with education and escalates as necessary to prosecution.

Figure 2.1 – The Enforcement Pyramid



ESV follows a series of activities in line with each stage and only escalates to enforcement action when poor responses do not improve.

2.1 Educate

Educate and maintain awareness of requirements

ESV maintains close contact with relevant regulators, industry associations, and regulated entities to:

- actively communicate legislative requirements and changes to legislation through industry meetings and direct communication
- issue guidance material
- provide feedback to all regulated entities as part of its assessment of Safety Case and Safety Management Plan submissions
- work in partnership with regulated entities to address emerging risks and issues.

2 J. Braithwaite, Rewards and Regulation, Journal of Law and Society Volume 29, Number 1, March 2002, ISSN: 0263-323X pp 12-26.

3 Ayres & J Braithwaite, Responsive Regulation: Transcending the Deregulation Debate, Oxford University Press, New York, 1992.

4 The electricity, gas, and pipeline sector compliance and enforcement tools available under the legislation administered by ESV vary from sector to sector.

Industry associations

In June 2018, ESV was appointed chair of the Gas Technical Regulators Committee (GTRC). The GTRC is an association of government departments responsible for the safe use of gas and includes representatives from every state and territory in Australia and New Zealand.

ESV also joined the Future Fuels Cooperative Research Centre (CRC), which aims to develop alternative fuel solutions for current infrastructure and equipment. The CRC's research goals include:

- accelerating the development of production technologies and end-use applications
- addressing issues around the safety and social acceptance of new and changed fuels
- studying the effect of future fuels on existing and new infrastructure.

Industry consultation meetings

ESV's industry consultation meetings during the reporting period involved representatives from all three industry groups. Occurring in December 2017 and May 2018, the meetings focused on a range of topics that included:

- scheduled compliance audits
- annual safety and integrity reporting
- cathodic protection system reporting
- sharing incident root cause findings and lessons
- investigations processes
- land development around pipelines
- the Safety Case and Safety Management Plan acceptance process evaluation panel.

The consultative meetings, which were well received, enabled ESV to inform industry participants about initiatives throughout the reporting period. ESV intends to evolve the meetings into a more collaborative environment that will enable industry to drive the topics under discussion.

2.2 Encourage

Foster and facilitate compliance

ESV actively engages regulated entities through compliance and field audits. Over the reporting period, ESV met with 32 organisations and carried out 23 compliance audits, 1 verification audit, 119 field audits, and 345 inspections. Ten audit finding rectification plans were provided and agreed with ESV.

2.3 Warn

Motivate immediate and ongoing compliance (formal warning and non-compliance notices)

Representing ESV's lowest enforcement level, formal warnings are most commonly issued for first offences where there are no serious consequences. Formal warnings are made in writing with the regulated entity's relevant executive. Non-compliance notices, which detail compliance requirements, most commonly arise from inspections and audits.

2.4 Enforce

Improvement, Infringement and Prohibition Notices, Official Warnings, and Directions

ESV issues Improvement Notices, Infringement Notices, Prohibition Notices, Official Warnings and Directions after a serious incident or risk to safety and specific action is required to avoid harm to people or property.

Improvement Notices are issued for contraventions of the Gas Safety Act and Gas Safety Regulations, the Pipelines Act, and pipeline license conditions. Infringement Notices and Prohibition Notices are issued to gas companies and retailers for serious gas safety risks, and to pipeline licensees for serious risks to health, safety or the environment. Directions are issued for safety reasons and in emergencies.

Penalties exist for failing to comply with these notices.

Improvement Notices

Improvement Notices are used to stop ongoing or repeated breaches of the relevant Act or Regulations.

ESV issued one Improvement Notice to Australian Gas Networks Limited during the reporting period. This followed an incident investigation involving damage to licensed pipeline PL-167 that occurred on 28 September 2016.

Infringement Notices

Infringement Notices (or on-the-spot fines) can be issued for a range of offences against the Gas Safety Act and are a lower-cost alternative to prosecution for safety breaches.

The penalty for these types of offences is set at one-tenth of the maximum penalty prescribed in the Acts, which the recipient can elect to either pay within a set period or not pay and have the matter heard in court.

ESV issued seven Infringement Notices during the reporting period relating to unauthorised excavation within three meters of a licensed pipeline and third party damage to gas mains and services.

Official Warnings

An Official Warning (pursuant to the Infringements Act) can be issued as an alternative to an Infringement Notice (for offences that can be dealt with by Infringement Notice).

Official Warnings outline a breach, instruct the person or organisation to comply in the future, and warn about further enforcement action if there is a failure to comply.

ESV issued 20 Official Warning letters during the reporting period relating to unauthorised excavation within three meters of a licensed pipeline and third party damage to gas mains and services.

Prohibition Notices

Prohibition Notices are only issued when there is an imminent or immediately serious risk to health and safety.

ESV did not issue any Prohibition Notices during the reporting period.

Directions

The Director of Energy Safety has the power to issue written directions to people or businesses to take particular actions to address safety issues.

At any time, the Director of Energy Safety may require the complete revision of a gas company's Safety Case or may determine and impose a Safety Case. This is a last-resort power enabling ESV to ensure network safety and continuity of supply to the community, and has the potential to be a more severe sanction than prosecution.

The Director of Energy Safety did not execute any directions during the reporting period.

2.5 Prosecute

Prosecution usually occurs when there is significant risk, when harm has actually occurred or when an organisation is unwilling to comply, and can stem from any of the provisions applying to regulated entities.

ESV did not prosecute any regulated entities or infringing parties during the reporting period.

3. Reportable safety incidents

Reportable safety incidents are defined by the:

- Gas Safety (Safety Case) Regulations 2008
- Pipelines Regulations 2017.

All regulated entities are required to comply with the reporting requirements this legislation defines. ESV's decision to investigate an incident is informed by a number of factors including the extent of injury, property damage, loss of supply, and the likelihood of safety action arising from the investigation.

This reporting period's reportable safety incidents are broken down into consequences and causes for assets involving licensed natural gas transmission pipelines, licensed non-natural gas pipelines, and gas distribution.

There were a total of 187 reportable safety incidents throughout the period:

- 17 licensed non-natural gas pipeline incidents
- 74 licensed natural gas transmission pipeline incidents
- 96 gas distribution incidents.

3.1 Reportable incident consequences

The reportable incidents with the most severe plausible consequences and the potential to cause death, injury and damage to property and the environment are categorised as:

Fire, ignition

- Near miss, proximity
- Gas leak, escape.
- Fire, ignition

Nine incidents were reported to ESV involving 'Fire, ignition', with one serious injury sustained but no fatalities. All involved natural gas mains and service infrastructure, with three caused by third party interference and six due to natural causes⁵.

While still hazardous, 'Fire, ignition' category incidents often flow from low pressure services and:

- remain significantly fewer in number than incidents where ignition does not occur
- represent a minority of all unplanned gas releases.

Near miss, proximity

By contrast, 81 incidents resulted in 'Near miss, proximity' category consequences, which relates to works being undertaken within three metres of a licensed pipeline.

This remains an ongoing focus for ESV given how often it occurs (with 74% of third party gas transmission asset interference resulting in a near miss) and the potentially high-consequence outcomes.

5 For example, lightning strikes, landslides, and tree root encroachment.

Gas leak, escape

Twenty-five incidents resulted in 'Gas leak, escape' and 'Major leaks' and 'Minor leaks' category consequences, which relates to unplanned gas release and leaks of product from licensed non-natural gas pipelines, respectively.

The criticality of leaks depends on a number of factors, such as the location of the leak, the amount of product released, and the proximity to people and property. The majority of leaks reported to ESV were low risk and repaired via general maintenance rather than requiring activation of an emergency response plan and requiring regulatory direction or approvals.

3.2 Reportable incident causes

The most common reportable incident causes are:

- Third party interference
- Integrity failure.

Third party interference

The vast majority of 'Near miss, proximity' category consequences are still being caused by 'Third party' interference⁶ with 158 incidents reported (83 for licensed pipelines and 75 for natural gas distribution). Types of third party interference include:

- unauthorised excavation within three metres of a licensed pipeline
- any incident involving damage to or contact with a licensed pipeline
- works causing damage to natural gas distribution mains and services.

Historically, external interference represents the biggest threat to pipeline integrity and the environment if a loss of containment occurs. Like all significant or potentially high consequence incidents, there can be a number of contributing factors that include:

- asset owners failing to execute external interference control
- a generally low level of community awareness about safe excavation around underground assets.

Damage to natural gas distribution mains and services due to third party interference often involves mobilising emergency services, supply loss, and (more significantly) burn injuries if a gas ignition occurs. Incidents like this are often caused by third party contractors working on telecommunications and water infrastructure located near natural gas assets.

While the occurrence of incidents around licensed pipelines remains relatively low, ESV continues to focus on ensuring pipeline licensees effectively execute their third party interference programs. ESV has been working with licensees to develop a broader understanding of the issues surrounding third party interference with licensed pipelines by developing a series of leading indicators.

ESV also commenced the Gas Asset Damage Mitigation (GADM) Project to investigate the situation with natural gas distribution assets, phase one of which is now complete. See Section 15.1 for more information about this project.

6 This relates to persons or entities that do not have a contractual arrangement with the asset owner.

Integrity failure

There were 15 incidents caused by 'Integrity failure'. While infrequent due to regular/periodic maintenance programs like mains and service renewal works, asset integrity failure has a number of possible causes including:

- water in the mains
- failure at valves
- consumer meter regulator assemblies
- corrosion.

Asset integrity failure can sometimes leads to gas escapes and domestic supply disruptions. In addition to the potential harm to persons and property, licensed non-natural gas pipelines that experience integrity failure also present a possible environmental impact.

3.3 Reportable incidents by industry group

3.3.1 Licensed non-natural gas pipeline incidents

Seventeen reportable incidents involving licenced non-natural gas pipelines were recorded by ESV during the reporting period. The greatest cause continues to be third party interference. ESV is actively encouraging licensees to continually improve pipeline awareness programs and in particular to:

- ensure licensee awareness program presentations are delivered to responsible personnel from the organisation (for example, local councils) receiving the presentation
- prioritise face-to-face liaison rather than mail outs (where feasible)
- deliver on the community awareness program requirements specified by the pipeline licensee's accepted Safety Management Plan.

ESV is also recording a number of integrity failures that directly resulted from ineffective periodic maintenance of pipelines and equipment. While maintenance is often undertaken by contractors on behalf of licensees, ESV expects licensees to confirm that this work is both regular, of a high-enough quality, and in accordance with Australian Standards.

Table 3.1 lists the different causes and consequences by category that non-natural gas pipeline licensees are required to report to ESV. There were no cases of death, injury or damage to property or the environment.

Table 3.1 – Cause and consequence categories for non-natural gas pipeline incidents

Cause	Definition	Number
Integrity failure	Degradation of an asset or the inability for a system to deliver on its intended purpose (for example, corrosion).	4
Operation error	Misuse of an operating system or failure to execute control mitigation procedures (for example, mis-management of Supervisory Control and Data Acquisition).	1
Third party	Any individual or organisation that does not have a legal transaction with the relevant asset owner (for example, installation of electrical conduit within three metres of a licensed pipeline).	12

Consequence	Definition	Number
Major leaks	An unplanned product release from the pipeline and requiring a mechanical repair (being the application of a sleeve, weld, or other).	1
Minor leaks	An unplanned product release from the pipeline and requiring a maintenance repair including but not limited to the non-routine maintenance of leaking valves and flanges.	2
Near miss, proximity	Unauthorised excavation within three metres of a licensed pipeline.	10
Pipe damage, no rupture	A hit on a pipeline that damages the asset without causing an escape of product.	4

Figure 3.1 and Figure 3.2 show the percentage breakdown of the different causes and consequences by category for the reporting period.

Figure 3.1 – Non-natural gas pipeline incident causes

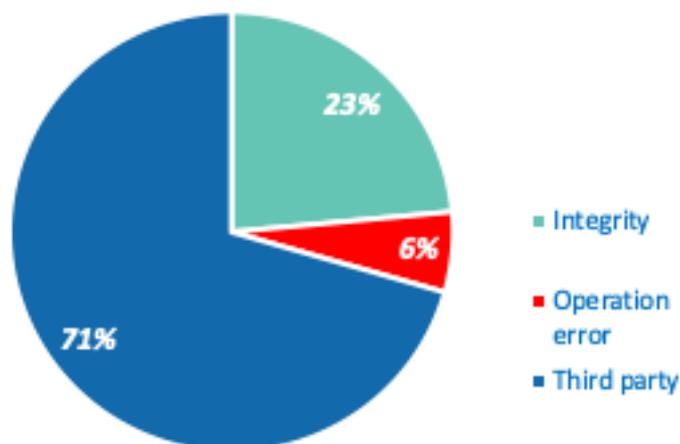
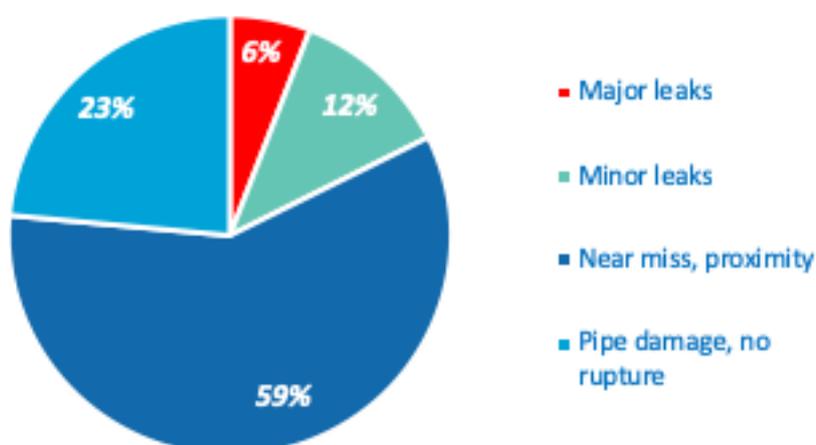


Figure 3.2 – Non-natural gas pipeline incident consequences



3.3.2 Licensed gas transmission pipeline incidents

Seventy-four reportable incidents involving licenced gas transmission pipelines were recorded by ESV during the reporting period. While asset owners go to considerable effort to reduce the occurrence of third party interference, this type of incident still remains a highly likely threat to pipeline safety given this asset type's size (usually many kilometres in length) and presence on unfenced land (including easements, corridors and Crown land).

The application of physical and procedural mitigation measures is designed to provide controls preventing damage to pipelines, and depth of cover appears to be the most critical physical barrier for successfully preventing third party damage.

A pipe's ability to resist penetration is a key component of a pipeline's physical protection measure. As a result, and given the significant likelihood of incidents of this type, licensees have undertaken a number of practical tests to assess mechanical toughness and the potential to puncture or rupture a pipeline.

Table 3.2 lists the different causes and consequences by category that gas transmission pipeline licensees are required to report to ESV. There were no cases of death, injury or damage to property or the environment.

Table 3.2 – Cause and consequence categories for gas transmission assets

Cause	Definition	Number
Integrity failure	Degradation of an asset or the inability for a system to deliver on its intended purpose (for example, corrosion).	2
Operation error	Misuse of an operating system or failure to execute control mitigation procedures (for example, management of Supervisory Control and Data Acquisition).	1
Third party	Any individual or organisation that does not have a legal transaction with the relevant asset owner (for example, installation of electrical conduit within three metres of a licensed pipeline).	71

Consequence	Definition	Number
Near miss, proximity	Unauthorised excavation within three metres of a pipeline.	71
Pipe damage, no rupture	A hit on a pipeline that damages the asset without causing an escape of product.	1
Gas leak, escape	An unplanned gas release.	2

Figure 3.3 and Figure 3.4 show the percentage breakdown of the different causes and consequences by category for the reporting period.

Figure 3.3 – Gas transmission incident causes

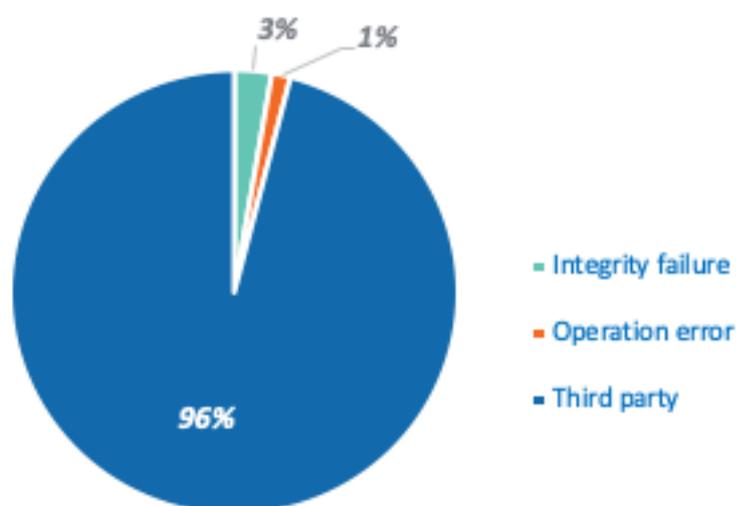
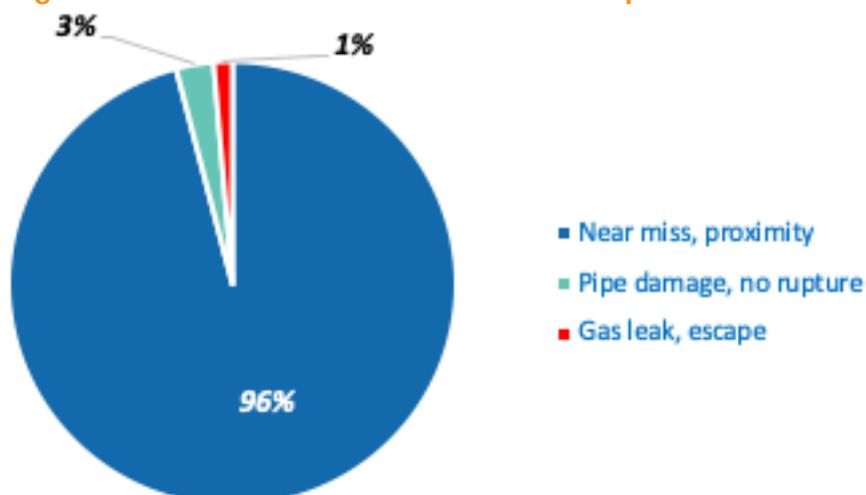


Figure 3.4 – Gas transmission incident consequences



3.3.3 Gas distribution incidents

Ninety-six reportable incidents involving gas distribution were recorded by ESV during the reporting period. With 78% being attributed to third party works impacting mains and service infrastructure, ESV has focused on reducing the number of incidents of this type and initiated the Gas Asset Damage Mitigation (GADM) Project to explore solutions to this ongoing problem. See Section 13.1.1 for incident statistics involving third-party damage to mains and services, and Section 15.1 for more information about the GADM project.

Table 3.3 lists the different causes and consequences by category that gas distribution is required to report to ESV. There were no cases of death or damage to property or the environment, but one injury did occur due to the ignition of an unplanned gas release.

Table 3.3 – Cause and consequence categories for gas distribution assets

Cause	Definition	Number
Integrity failure	Degradation of an asset or the inability for a system to deliver on its intended purpose (for example, corrosion).	9
Nature	The effect of a natural occurrence (for example, a lightning strike or subsidence).	6
Non-compliant installation	An installation that does not meet the prescribed Australian Standard (for example, a main-laying installation that does not comply with AS 4645).	1 ¹
Operation error	Misuse of an operating system or failure to execute control mitigation procedures (for example, management of Supervisory Control and Data Acquisition).	2
Third party	Any individual or organisation that does not have a legal transaction with the relevant asset owner (for example, installation of electrical conduit within three metres of a licensed pipeline).	75
Unknown	Undetermined cause of incident.	3

Consequence	Incidence
Fire, ignition	9 ¹
Gas asset damage	55
Gas leak, escape	20
Loss of gas supply	10
Pipe damage, no rupture	2

Notes:

1. This incident (due to a storm water network explosion at Maddingly), which resulted in a hospitalisation, was confirmed in April 2018 as being caused by natural gas.

Figure 3.5 and Figure 3.6 show the percentage breakdown of the different causes and consequences by category for the reporting period.

Figure 3.5 – Gas distribution incident causes

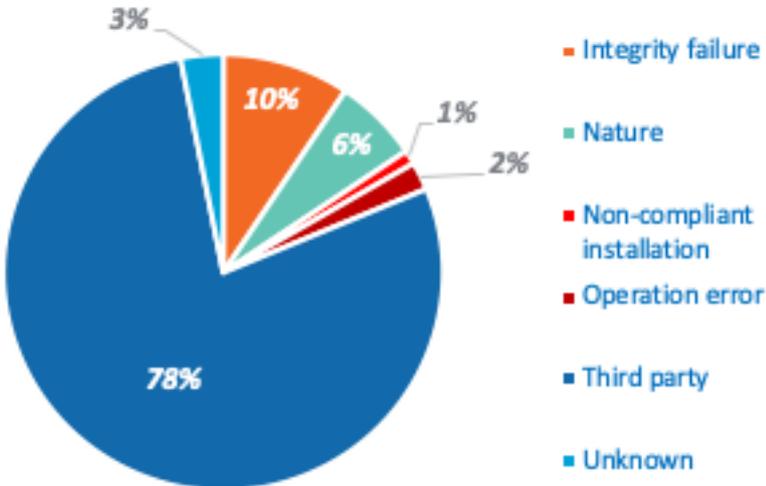
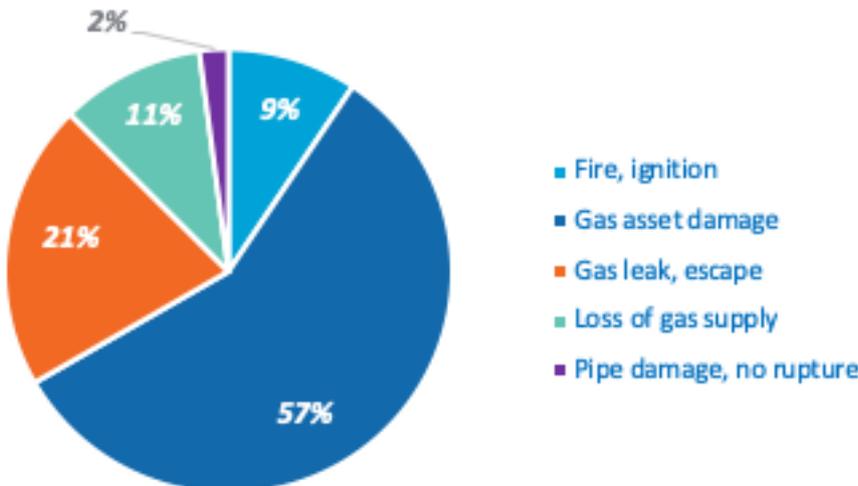


Figure 3.6 – Gas distribution incident consequences



4. Prioritisation of focus and the strategic audit plan

ESV reviews its strategic audit priorities at the start of each reporting period. In comparison with last year's plan, the priorities for the reporting period built on and refined the review of contractor management, and specifically targeted oversight and supervision of contractors performing safety critical functions for asset owners. This included an increased focus on:

- Natural Gas Distribution and particularly the continuity of preventative maintenance and construction activities in accordance with the relevant safety cases
- the Natural Gas Distribution and Natural Gas Licensed Pipeline industry groups, and specifically their contractor management and monitoring of safety performance measures in accordance with their Safety Cases
- non-gas licensed pipelines and their external interference systems to manage third party works and monitor safe excavation near pipelines in accordance with the relevant Pipeline Integrity Management Plan.

5. The structure of the GPI Safety Management Report

GPI Safety Management reporting covers three industry groups:

- **Licensed Pipelines** (comprising natural gas transmission pipelines, non-natural gas pipelines, and the gas market operator (AEMO)).
- **Non-licensed Gas Infrastructure** (comprising natural gas distribution, reticulated LP GAS, LP GAS retail, landfill biogas, CNG, and LNG).
- **Natural Gas Retail.**

Each industry group report covers five main areas:

- **Monitoring, auditing and inspection** discusses ESV's activities and findings from monitoring the existence and efficacy of threat-barriers, including basic safety framework documentation, self-reporting and KPIs, and audit outcomes.
- **Acceptances and approvals** reports on the status of safety framework documentation submissions and approvals and highlights any emerging issues.
- **Education and partnerships** discusses ESV's collaborative engagements with industry and the community to address emerging risks and facilitate safety outcomes via education and partnerships.
- **Compliance and enforcement** provides information about ESV's Compliance and Enforcement Policy and Compliance Strategy as well as any compliance and enforcement activities ESV was required to undertake.
- **Focus and priorities for 2018-19** discusses those areas within the industry group that ESV intends to prioritise for the coming reporting period.

Licensed Pipelines



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6. Introduction

6.1 The Licensed Pipelines Industry Group

The Licensed Pipelines Industry Group, involving licensed natural gas transmission pipelines, licensed non-natural gas pipelines and the market operator is characterised by:

- a single large business operating the main Victorian natural gas transmission grid (APA VTS Australia (Operations) Pty Ltd)
- operational oversight from the Victorian market operator (AEMO)
- businesses operating other licensed natural gas transmission pipelines
- businesses operating other licensed pipelines (conveying non-natural gas products like crude oil, LP GAS, and unprocessed natural gas).

These entities all operate under an outcome-based regime that imposes a general duty to minimise risks to people, property and the environment, and must submit safety framework documentation including a Safety Case and/or a Safety Management Plan.

Table 6.1 lists the organisations in this industry group as at 1 July 2018.

Table 6.1 – Licensed Pipelines

Regulated entity	Pipeline licences
Licensed natural gas transmission pipelines	
APA VTS Australia (Operations) Pty Ltd	36, 50, 67, 68, 75, 78, 81, 91, 101, 107, 108, 112, 117, 120, 121, 122, 124, 125, 128, 129, 131, 132, 134, 135, 136, 141, 143, 145, 152, 155, 162, 164, 168, 171, 176, 178, 182, 202, 227, 230, 231, 238, 252, 253, 266
APT Pipelines Limited (operated by APA VTS Australia)	255
Australian Gas Networks Limited	11, 43, 44, 49, 61, 62, 66, 85, 102, 103, 115, 137, 139, 167, 186, 187, 201, 206, 207, 208, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 222, 223, 224, 226, 267
AusNet Gas Services Pty Ltd	16, 17, 18, 19, 54, 57, 64, 76, 80, 82, 84, 90, 97, 99, 113, 184, 188, 189, 190, 191, 192, 193, 195, 196, 197, 198, 199, 200, 203, 221, 235, 256, 257
Gas Pipelines Victoria Pty Ltd	179
LYB Australia Ltd	234
Jemena ¹	232, 247
Multinet Gas ²	28, 33, 40, 47, 51, 56, 77, 100, 142, 205, 209, 210, 261, 265, 276
Beach Energy (Bass Gas) ³	244
South East Australia Gas (Mortlake) Pty Ltd	259
South East Australia Gas Pty Ltd	239
Tasmanian Gas Pipeline Pty Ltd	236
Licensed non-natural gas pipelines	
Air Liquide Australia Limited	154, 160, 161, 173
BHP Billiton	228
BOC Limited	87, 88, 89, 109, 110, 111, 127, 157
BP Australia Pty Ltd ⁴	9, 22, 58, 59, 60
Ixom Pty Ltd	277

Regulated entity	Pipeline licences
Coogee Energy Pty Ltd	158
Elgas Ltd	172
Esso Australia Pty Ltd ⁵	1, 2, 27, 34, 35, 39, 42, 46, 53, 63, 96, 98, 116, 126, 133, 149, 150, 233, 282
Exxon Mobil Aviation ⁶	118, 119
Incitec Pivot Limited	104
Mobil Oil Australia Pty Ltd	283
Mobil Refining Australia Pty Ltd	37, 38, 55, 69, 70, 71, 72, 73, 74, 151
Beach Energy (Bass Gas) ³	243
Beach Energy	237, 240, 250, 006009
Qenos Pty Ltd	130, 144, 258
Cooper Energy (CH) Pty Ltd	251
Cooper Energy (PB) Pty Ltd	6631
Cooper Energy (SOLE) Pty Ltd	6238
Stolthaven ⁷	138
United Terminals Pty Ltd	153
Viva Energy Australia Ltd ⁸	3, 5, 6, 7, 8, 10, 65, 262, 263
Notes:	
1. Combines Jemena EGP and VicHub for reporting purposes.	
2. Combines Multinet Gas Distribution Partnership and MG (DB No1) and MG (DB No2) for reporting purposes.	
3. The sales gas pipeline (244) and raw gas pipeline (243) are covered by a separate Safety Case and Safety Management Plan respectively.	
4. Licence 58, 59, and 60 form part of an industry joint-venture (JV) between BP Australia, Viva Energy Australia and Caltex Australia Petroleum. Viva Energy Australia currently manages the pipelines on behalf of the JV.	
5. Includes Esso Australia Resources Pty Ltd for reporting purposes.	
6. Exxon Mobil Aviation is a representative of Mobil Oil Australia Pty Ltd, which shares a licence between a group of entities.	
7. Combines Stolthaven Coode Island Pty Ltd and Stolthaven Properties Pty Ltd for reporting purposes.	
8. Includes WAG Pipeline Pty Ltd.	

6.2 Licensed Pipelines Industry Group changes

Changes to the Licensed Pipelines Industry Group's licence holders during the reporting period include the:

- surrender of Caltex Australia Petroleum Pty Ltd pipeline licences 23, 25 and 26
- acquisition of the Lattice Energy Limited licences (formerly Origin Energy Resources Ltd) by Beach Energy Limited
- acquisition of the Santos Limited and Santos NT Ltd licences by Cooper Energy Limited
- surrender of Coogee Energy Pty Ltd pipeline licence 159
- acquisition of the Santos NT Ltd licensed pipeline 230 by APA VTS Australia (Operations) Pty Ltd
- issue of a new pipeline licence (283) to Mobil Oil Australia Pty Ltd
- construction of the new Cooper Energy (SOLE) Pty Ltd licensed pipeline 6238.

6.3 Focus and priorities during 2017-18

ESV focused on its ongoing five-yearly safety management framework documentation reviews during the reporting period, with a further focus on:

- emergency management systems, which assess the licensee's capability to respond to any foreseeable incidents, including its effectiveness at planning pipeline-related emergency response exercises
- contractor management systems that involve contractor evaluation, selection, supervision, auditing, and monitoring, and the appointment of competent personnel to perform specific tasks and functions
- Safety Management Plan acceptance for all non-gas pipeline licensees and compliance with Pipelines Act requirements
- Self-reporting, including:
 - revising Licensed Pipeline Industry Group KPIs that aim to identify trends and emerging risks, and provide a level of assurance that risks are being managed by providing leading performance indicators
 - annual safety and integrity performance reporting.

7. Monitoring, auditing and inspections

7.1 Compliance documentation and key mandated requirements

Regulated entities are required to have a range of up-to-date compliance documents⁷ that detail the entity's safety management framework and provide a benchmark for ESV's ongoing compliance audits.

Compliance document types specific to this industry group include:

- Safety Cases and Safety Management Plans⁸
- as-built drawings and route plans
- formal delegations⁹
- Pipeline Integrity Management Plans and subordinate plans, such as plans for repair, fracture control and remaining life review
- De-commissioning Plans for suspension or abandonment¹⁰
- Emergency Response Plans.

7.1.1 Compliance documentation

Safety Management Plan and Safety Case revisions are required to comply with the 2012 revision of AS 2885 (see Section 8.1 for more information about the status of these revisions).

Fifteen pipeline licensee¹¹ Safety Management Plan and Safety Case revisions were submitted for ESV's review during the reporting period. ESV's review of these revisions may require specific plans to address risk and uncertainty arising from the pipeline's operation. Oversight of managerial decisions relating to this work is provided by ESV's Gas & Pipeline Safety Case Evaluation Panel.

7 Legislation and standards require that Safety Cases and Safety Management Plans are reviewed at least every five years to the satisfaction of ESV.

8 Natural gas transmission pipeline licensees generally have Safety Cases and non-natural gas pipeline licensees have Safety Management Plans.

9 The person responsible for the operation of a facility as declared under the Gas Safety Act and in accordance with AS 2885.

10 De-commissioning Plans are required if the pipeline will be maintained in a non-flowing condition for an extended period.

11 There are 21 non-natural gas pipeline licensees.

Emergency response exercises

Licensed Pipeline Industry Group members are expected to undertake emergency response exercises every year¹². The emergency response exercises and their corresponding reports are intended to demonstrate that:

- responsible persons, as identified in the endorsed Emergency Response Plan, will be directly involved
- the exercise (with supporting documentation) reflects a realistic facility/pipeline incident event that tests both response and recovery protocols
- lessons have been learned, including recommendations and any further actions taken to ensure ongoing improvement.

ESV increased its emergency response exercise reviews during the reporting period, and has noted an improvement in the development of after-action review reports.

7.1.2 Annual safety and integrity performance reporting

As detailed by clause 11 (1c) of the Pipelines Regulations 2017, licensees are required to report annually on their pipeline safety and integrity maintenance performance. A new guideline was issued to the industry for this reporting period to assist pipeline licensees with meeting regulatory requirements and the requirement for consistent reporting.

Table 7.1 lists the regulated entities late to submit a Safety and Integrity Performance Report (as at 30 September 2018).

Table 7.1 – Safety and Integrity Performance Report late submissions

Licensed natural gas transmission pipelines
None
Licensed non-natural gas pipelines
BOC Limited
Air Liquide Australia Limited
BHP Billiton

7.2 Self-reporting and KPIs

ESV has agreements with regulated entities (underpinned by legislation) to provide safety-related information, typically covering:

- incident statistics and unauthorised works within three metres of a licensed pipeline
- pipeline integrity management reporting
- periodic compliance reporting.

This information helps to evaluate the regulated entity's performance against its Safety Case and provide assurance that risks are being managed and controls are effective. See Section 10.1 for information about serious incident investigations that may lead to enforcement action.

¹² Natural gas pipeline licensees must conduct at least two exercises and non-natural gas pipeline licensees must conduct at least one. ESV does not count actual pipeline incidents as emergency exercises.

7.2.1 Pipeline integrity management reporting

ESV receives information from a variety of sources that include inspection reports, cathodic protection surveys, emergency response exercises, direct current voltage gradient (DCVG) or coating surveys, and dig-up verification programs. Other pipeline integrity management considerations include:

- requirements to authorise works within three metres of a pipeline
- stray current corrosion mitigation.

Where required, ESV responds to submissions directly with licensees on a case-by-case basis.

Requirements to authorise works within three metres of a pipeline

Legislation identifies the following requirements for the authorisation of works within three metres of a pipeline:

- Gas Safety Act sections 79B, 79C and 79D prohibit persons from interfering with pipelines and from digging in the vicinity of gas pipelines without authorisation.
- Pipelines Act sections 117–120 prohibit persons from building structures (temporary or permanent) or digging near underground pipelines without authorisation, obstructing pipeline operations, or interfering with pipelines.

There are also several critical considerations prior to issuing Ministerial consent to works within three metres of a pipeline:

- The licensee maintains '24/7' access to its facility.
- An Emergency Response Plan approved by the licensee is in place with the party conducting the works.

See also Section 9.2 for information about new initiatives in this area.

Stray current corrosion mitigation

The *Electricity Safety Act 1998* (ESA) and the Electricity Safety (Cathodic Protection) Regulations 2009 regulate the mitigation of stray current corrosion. Pipeline and gas network owners subject to the *Pipelines Act 2005* and the *Gas Safety Act 1997* also have general safety duties that include protection from corrosion (including stray current corrosion).

7.2.2 Periodic compliance reporting

ESV has an agreed reporting framework with the licensed transmission pipeline industry for the submission of quarterly KPI reports, which are expected to be submitted to ESV within 20 business days of the end of the reported quarter.

Table 7.2 lists the regulated entities late to submit KPI quarterly reports on more than one occasion during the reporting period.

Table 7.2 – Periodic KPI quarterly report late submissions

Licensed natural gas transmission pipelines
Beach Energy (Bass Gas)
LYB Australia Ltd
Licensed non-natural gas pipelines
Not applicable ¹
Notes:
1. Periodic compliance reporting has not previously applied to licensed non-natural gas transmission pipeline companies. ESV and the licensees have now reviewed the KPIs, and quarterly reporting will commence in the next reporting period.

7.3 ESV audits

7.3.1 Audit plans

ESV audits are designed to test compliance with Safety Cases and Safety Management Plans in line with the risk-based strategic audit framework.

High-level audit findings are categorized in one of two ways:

- ‘Observations’ represent an isolated lapse or failure to comply with a specified requirement with the potential to lead to non-conformance and must be addressed within two months.
- ‘Non-conformances’ represent a failure to comply with specified requirements and must be addressed immediately or as otherwise agreed with ESV.

As per ESV’s audit practice:

- auditees must provide formal notification when all audit findings have been addressed
- an audit remains open until ESV is satisfied that the auditee has adequately addressed the audit findings.

An audit’s progress is also categorized in one of three ways:

- ‘In progress’ refers to a recent audit in the process of having a rectification plan agreed or audit findings rectified in accordance with an agreed plan or within an appropriate timeframe.
- ‘Incomplete’ refers to an audit where there is no evidence the audit’s findings have been rectified as per the agreed plan.
- ‘Closed’ refers to an audit response that has rectified the audit’s findings.

Audits conducted for these industry groups include:

- compliance audits (focussing this year on contractor and emergency management audits)
- verification audits.

7.3.2 Verification audits

Where necessary, ESV may conduct a verification audit to ensure audit findings have been satisfactorily addressed. Alternatively, as occurred during this reporting period, submitting evidence to justify the closure of an audit may be deemed sufficient.

ESV conducted one verification audit during the reporting period. The aim of the audit was to verify the implementation of new processes and procedures to address deficiencies identified in ESV’s improvement notice to Australian Gas Networks Limited. The audit identified three observations that have since been closed.

7.3.3 Compliance audits

Compliance audits are systematic reviews of an entity's safety management framework that are designed to ensure compliance with:

- the framework's specific requirements
- legislative clauses
- Australian Standards.

In this reporting period, ESV concentrated on:

- contractor management audits
- emergency management audits.
- Contractor management audits

The contractor management audits aimed to establish that pipeline licensees have:

- personnel competent to perform the specific tasks and functions they are responsible for
- processes in place to manage, audit, review and monitor their contractors.

Table 7.3 lists the status of the contractor management audits for the reporting period.

Table 7.3 – Contractor management audits

Regulated entity	Non-conformances	Observations	Status ¹
Licensed natural gas transmission pipelines			
LYB Australia Ltd	2	1	Closed
Jemena	2	1	Closed
South East Australia Gas Pty Ltd	0	2	Closed
Tasmanian Gas Pipeline Pty Ltd	2	1	Closed
APT Pipelines Limited (operated by APA VTS Australia) ²	0	0	Closed
Licensed non-natural gas pipelines			
Air Liquide Australia Ltd	2	3	In progress
BOC Limited	1	5	In progress
United Terminals Pty Ltd	3	2	In progress
Mobil Refining Australia Pty Ltd	0	2	In progress
Viva Energy Australia Ltd	0	2	In progress
Qenos Pty Ltd	0	3	In progress
Ixom Pty Ltd	0	2	In progress
Elgas Ltd	0	8	In progress
Esso Australia Pty Ltd	0	4	In progress
Notes:			
1. This is the status as at 30 June 2018. The audits commenced in April 2018.			
2. This audit was combined with the Safety Case acceptance audit.			

ESV's contractor management audits included the following recurring findings:

- Works undertaken by a principal contractor are normally overseen using periodic reporting in accordance with Service Level Agreements and include information relating to:
 - incidents
 - operational summaries and scheduled works
 - maintenance issues (identified and ongoing) including work order summaries in accordance with preventative/corrective maintenance routines
 - aerial patrols and surveillance activities.
- Contractors are typically assessed via the completion of an evaluation criteria form (either during the purchase order or the tender process) that gauges skills, expertise, and qualifications.
- Specialty contractors generally undertake non-routine activities (for example, in-line inspections or pipeline dig-ups) under licensee supervision.
- As well as supervising safety critical work, licensees hold Permit to Work records as evidence of safe work management.
- There are inconsistencies between contractor management procedures and the accepted Safety Case/Safety Management Plan.

Emergency management audits

Table 7.4 lists the status of the emergency management audits that were finalised and closed from the previous reporting period (2016-17). All Non-conformances and Observations were appropriately addressed.

Table 7.4 – Emergency management audits for 2016-17

Regulated entity	Non-conformances	Observations	Status ¹
APA VTS Australia (Operations) Pty Ltd	0	5	Closed
Australian Gas Networks Limited	0	5	Closed
AusNet Gas Services Pty Ltd	0	2	Closed
Gas Pipelines Victoria Pty Ltd	5	12	Closed
LYB Australia Ltd	0	5	Closed
Jemena	0	8	Closed
Multinet Gas	0	8	Closed
Beach Energy (Bass Gas)	0	6	Closed
South East Australia Gas Pty Ltd	0	6	Closed
Tasmanian Gas Pipeline Pty Ltd	0	8	Closed
Notes:			
1. Shows the status as at 30 June 2018.			

For this reporting period, ESV's emergency management audits sought assurance that licensees:

- establish robust systems for ensuring emergency personnel are fully aware of their obligations to ensure safety
- are aware of the requirement to:
 - collaborate with external emergency services, neighbouring establishments and residents, city councils, and ESV during certain emergency levels
 - employ systems with sufficient redundancy to alleviate potential emergency scenarios and ensure asset owners operate facilities to a level of risk that is as low as reasonably practicable (ALARP)
- have adequate emergency materials available for emergency repair
- have a detailed response plan in place to address all pipeline-related emergency events.

For the second consecutive year, ESV engaged a third party to assist with auditing licensed natural gas transmission pipeline companies, licensed non-natural gas pipeline companies and natural gas distribution businesses. This increased the number of audits achievable by ESV, as well as ESV's focus on the rectification of findings and their verification. The program once again received positive feedback from industry about its efficiency and effectiveness.

The audit program for this reporting period was significantly influenced by previous incidents (including the injection of unodourised gas at the Bass Gas facility and damage to the Dromana to Rye transmission pipeline), so the program focussed on the:

- assessment of emergency response protocols, procedures, and emergency response exercises
- training and competency of crisis management teams with respect to their Emergency Response Plans.

Table 7.5 lists the status of the emergency management audits for this reporting period.

Table 7.5 – Emergency management audits

Regulated entity	Non-conformances	Observations	Status ¹
Air Liquide Australia Ltd	0	6	In progress
BOC Limited	0	6	In progress
United Terminals Pty Ltd	0	9	In progress
Mobil Refining Australia Pty Ltd	0	4	In progress
Viva Energy Australia Ltd	0	11	In progress
Qenos Pty Ltd	0	3	In progress
Ixom Pty Ltd	0	6	In progress
Elgas Ltd	0	10	In progress
Esso Australia Pty Ltd	0	3	In progress
Notes:			
1. Shows the status as at 30 June 2018. The audits commenced in April 2018.			

The emergency management audits included the following recurring findings:

- Emergency Response Plans are not addressing different pipeline scenarios and emergency exercises are not pipeline related.
- Contact lists are out-dated and the processes for keeping them up-to-date are undefined.
- Inconsistencies exist between the Emergency Response Plans and the accepted Safety Management Plan (for example, there are mismatches between the organisational charts, ESV reporting details, and Emergency Response Plan review frequencies).

7.3.4 Responses to audit

Licensees were highly supportive and provided all the required procedures for an effective series of audits, as well as arranging for personnel directly involved in contractor and emergency management to assist.

In terms of specific responses to audit:

- natural gas pipeline licensees sought to immediately rectify audit findings rather than develop rectification plans, ensuring the quick close out of audit findings
- non-natural gas pipeline licensees initially submitted rectification plans that were agreed with ESV prior to commencing audit finding rectification.

8. Acceptances and approvals

8.1 Safety Management Plan and Safety Case acceptance

Legislation requires Safety Cases and Safety Management Plans¹³ to be revised at least every five years to the satisfaction of ESV. In most cases, new entrants and existing companies work closely with ESV to ensure the content and quality of their submissions are appropriate for a particular facility, significantly reducing the number of re-submissions required before acceptance is given¹⁴.

Table 8.1 lists the Safety Case lodgement status as at 30 June 2018.

Table 8.2 lists Safety Management Plan revision acceptances as at 30 June 2018.

Table 8.1 – Safety Case acceptance (licensed natural gas transmission pipelines and the market operator)

Licensed natural gas transmission pipelines, market operator	Date last accepted	Next revision due	Next revision submitted
APA VTS Australia (Operations) Pty Ltd ¹	27-Aug-2009	27-Aug-2014	Yes
Beach Energy (Bass Gas) ²	14-Apr-2010	14-Apr-2015	Yes
Australian Gas Networks Limited	02-Aug-2010	02-Aug-2015	Yes
Gas Pipelines Victoria Pty Ltd	21-Dec-2011	21-Dec-2016	Yes
Tasmanian Gas Pipeline Pty Ltd	28-Jun-2013	28-Jun-2018	Yes
Jemena	04-Jul-2013	04-Jul-2018	Yes
LYB Australia Ltd	09-Jul-2013	09-Jul-2018	No
South East Australia Gas Pty Ltd	14-Mar-2014	14-Mar-2019	No
Australian Energy Market Operator Limited	08-Dec-2015	08-Dec-2020	No
South East Australia Gas (Mortlake) Pty Ltd	15-Sep-2017	15-Sep-2022	No
Multinet Gas	06-Oct-2017	28-Sep-2018	Yes
AusNet Gas Services Pty Ltd	29-Mar-2018	29-Mar-2023	No
APT Pipelines Limited (operated by APA VTS Australia)	20-Aug-2018	20-Aug-2023	No
Notes:			
1. ESV completed the acceptance audit of APT Pipelines limited, which incorporates safety framework documentation for the APA VTS Australia (Operations) Safety Case.			
2. ESV has reviewed the relevant compliance documentation and is yet to make a decision.			

13 The requirement for an accepted Safety Management Plan for all licensed non-natural gas pipelines came into effect with the introduction of the Pipelines Regulation in 2007, and 5-yearly revisions were subsequently submitted to ESV in 2012-13. All regulated entities that are yet to have their 5-yearly Safety Management Plan revision accepted are currently consulting with ESV (at a minimum) to develop a satisfactory submission. Where a revision has not yet been accepted then the previous Safety Case or Safety Management Plan is the currently accepted version.

14 Gas companies declared under the Gas Safety Act or that hold a licence issued under Section 5 of the Gas Safety Act should be familiar with ESV's new Safety Case Preparation and Submission for Facilities and Pipelines guidelines, which were published in 2018 (<https://www.esv.vic.gov.au/wp-content/uploads/2018/10/Gas-Safety-Case-Preparation-and-Submission-for-Facilities-and-Pipelines-Guidelines.pdf>).

**Table 8.2 – Safety Management Plan submission and revision acceptance
(licensed non-natural gas pipelines)**

Licensed non-natural gas pipelines	SMP revision accepted ^{1,2}
Air Liquide Australia Limited	✓
Beach Energy ³	-
Beach Energy (Bass Gas) ³	-
BHP Billiton ³	-
BOC Limited	✓
BP Australia Pty Ltd ²	-
Coogee Energy Pty Ltd ²	-
Cooper Energy (CH) Pty Ltd	✓
Cooper Energy (PB) Pty Ltd	✓
Cooper Energy (Sole) Pty Ltd ⁴	-
Elgas Ltd ²	-
Esso Australia Pty Ltd	✓
Exxon Mobil Aviation	✓
Incitec Pivot Limited	✓
Ixom Pty Ltd ²	-
Mobil Oil Australia Pty Ltd	✓
Mobil Refining Australia Pty Ltd ²	-
Qenos Pty Ltd	✓
Stolthaven ²	-
United Terminals Pty Ltd ²	-
Viva Energy Australia Ltd ⁵	✓
Notes:	
1. A tick denotes acceptance of the relevant compliance documentation.	
2. Submitted compliance documentation might not have been accepted for a range of different reasons, from ESV not yet having reviewed the submission, through to deeming the submission as being unsatisfactory.	
3. The ESV Safety Case evaluation panel is in the process of making a determination.	
4. A licence has been issued for PL-6238, but a Safety Management Plan is not required for acceptance because it is not yet commissioned for operation.	
5. Acceptance of this revised Safety Management Plan specifically relates to PL-65.	

ESV reviewed the following submissions from the Licensed Pipeline Industry Group during the reporting period:

- Safety Management Plans and Safety Cases (specifically relating to suspended pipelines, Safety Management Plan and Safety Case production, and safety management studies)
- Pipeline Integrity Management Plans
- Repair Plans
- Emergency Response Plans.

Issues of any substance revealed by this review have been (or are in the process of being) addressed as per legislative requirements.

8.1.1 Safety Management Plan and Safety Case issues

Licensees are generally well-versed in conducting and documenting risk assessments, identifying threats, and determining risk mitigation measures. ESV is looking at having licensees continue to build on their description of threats and controls and provide more detail about specific threats and physical/procedural controls.

Issues involving a licensee's safety framework often occur with:

- suspended pipelines
- Safety Management Plan and Safety Case submission
- safety management studies.

Suspended pipelines

ESV is continuing to work with licensees with suspended pipelines to ensure that Australian Standards are being met.

Licensees with suspended pipelines often have the original product replaced with water (coupled with a corrosion inhibitor), slurry, or an inert gas. However, where a suspension is of long standing¹⁵, the pipeline is significantly degraded, and the licensee has no suspension plan, the pipeline must:

- be returned to its required state under the licence, or
- have its licence surrendered.

Safety Management Plan and Safety Case submission

Natural gas pipeline licensees have demonstrated continuous improvement when it comes to the quality of their Safety Case submissions and are adequately engaging with ESV to ensure their documentation reflects legislative requirements. ESV is increasingly looking for licensees to provide more information about the detailed operation and component parts of their safety management systems to ensure compliance with relevant legislation.

ESV's response to production issues is to meet with licensees and make them aware that the safety management framework needs to:

- be specific to the operation of the facility (or organisation)
- meet Australian Standards
- meet the regulatory requirements administered by ESV.

¹⁵ AS2885.3 states that the period of suspension should not be longer than 18 months if the fluid is water, but licensees have not been advising the Department of Environment, Land, Water and Planning (DELWP) of licence changes or submitting suspension plans to ESV prior to suspending their pipelines. The Australian Standard also states that licensees should review the suspended state annually, and ESV has not been informed of a review in most cases. ESV is aware of 17 suspended licensed pipelines.

ESV will not accept safety framework documentation that does not meet these criteria. ESV has also developed a new guideline, Gas Safety Case Preparation and Submission for Facilities and Pipelines, to assist with the preparation and submission of a Gas Safety Case (GSC)¹⁶.

Safety management studies

ESV attended a number of safety management studies¹⁷ during the reporting period. Safety management study workshops that followed AS 2885¹⁸ were typically effective in the way they accurately identified and assessed specific risks. General observations relating to this qualitative risk assessment methodology include the following:

- A clear scope was established and conservative assumptions made (meaning worst case scenarios were being considered).
- Anticipated land use around pipelines was considered.
- ‘Resistance to Penetration’ testing was performed¹⁹.
- Engagement from different parts of an organisation produced more broadly ranging discussions and better outcomes.

On review, studies that used an alternative method experienced a series of issues including the following:

- Assessments involving risk control effectiveness and ALARP were not conducted.
- Assessments did not consider the current pipeline integrity.
- Calculations for measuring a liquid pipeline’s length used the formula for gas pipelines.

8.1.2 Pipeline Integrity Management Plan issues

Issues relating to submitted Pipeline Integrity Management Plans include:

- not providing specific information about the actual condition of the pipe
- no detailed description of operational maintenance works and the frequency of this work
- not using corrosion rates to justify inspection frequencies
- validating indirect inspection methods through verification dig-ups.

16 This guideline was published in October 2018. (<https://www.esv.vic.gov.au/wp-content/uploads/2018/10/Gas-Safety-Case-Preparation-and-Submission-for-Facilities-and-Pipelines-Guidelines.pdf>). A guideline for completing a Safety Management Plan (SMP) in accordance with the Pipeline Regulations is currently being developed.

17 Documented workshops attended by relevant experts where potential threats are identified and their possible treatment discussed.

18 A process that identifies threats to the pipeline system, applies controls, and (if necessary) undertakes assessment and treatment of any risks to ensure that residual risk is reduced to an acceptable level.

19 ‘Resistance to Penetration’ is a test involving a sample pipe that is subjected to various forms of mechanical interference (like an excavator) to establish the pipe’s ability to withstand that type of interference.

8.1.3 Repair Plan issues

Issues relating to submitted Repair Plans include:

- having a clearly documented methodology for each type of repair
- relating a non-relevant Australian or international standard to the defect and repair
- inappropriately applying standards and codes to pipelines that do not meet the applicable conditions
- not clearly documenting the methodology for each type of repair
- insufficiently describing the process for assessing anomalies and the criteria used to determine a defect
- not clearly classifying the repair methods that apply to leaking and non-leaking defects
- not describing the limits to which grinding can be used to address anomalies or defects. For example:
 - how the amount of ground material removed is deemed acceptable
 - when to use repair sleeves
 - how to assess non-destructive testing (NDT) requirements
 - how to control heat input and grooving and what constitutes a grinding defect.

8.1.4 Emergency Response Plan issues

Issues relating to submitted Emergency Response Plans include:

- not describing the availability of certified emergency equipment, pipe and fittings
- omitting response and recovery plans for varying situations, which as a minimum are specified in AS2885.3 Section 11.1
- not addressing the affected area in the event of an ignition (the measurement length) and the affected area.

8.2 Operational works approvals

ESV's audit activities include the review and acceptance of project-specific Construction Safety Management Plans (for licensed pipeline alteration and construction), Consents to Operate (for commissioning licensed assets) and for third party proposed construction works within three metres of a licensed pipeline²⁰. Decommissioning Works Plans and Repair Works are also lodged with ESV for review.

ESV's timely processing of these submissions is greatly improved by:

- regular engagement with pipeline licensees to discuss the project's:
 - scope and to outline the regulatory approval processes associated with the proposed work
 - timelines and schedules
- close interaction with the Department of Environment, Land, Water and Planning (DELWP).

Table 8.3 lists Construction Safety Management Plans reviewed and accepted by ESV.

Table 8.4 lists Consent to Construct applications (within three metres of a pipeline) reviewed and accepted by ESV on behalf of the Minister.

Table 8.5 lists Consent to Operate applications reviewed and accepted by ESV on behalf of the Minister.

²⁰ Responsibility for issuing Consent to Operate and dispensation for works within 3 meters is provided via ministerial delegation.

**Table 8.3 – Construction Safety Management Plan acceptances
(Construction – Alteration to License)**

Pipeline licensee	Project name	Pipeline licence number
APA VTS Australia (Operations) Pty Ltd	Pipeline relocation for M80 widening project	81
AusNet Gas Services Pty Ltd	Field regulator installation at Dana St, Ballarat	188
Mobil Oil Australia Pty Ltd	Yarraville jet fuel pipeline (Revision)	283

**Table 8.4 – Consent to Construct (within three metres of a pipeline)
acceptances (dispensation)**

Applicant	Project name	Licence number
LXRA	Level Skyrail Project at Grange Road (Caulfield to Dandenong Project)	36
MJM Cabbs Pty Ltd	Construction of fencing structure	118
Western Program Alliance	Level Crossing Removal Project – Kororoit Creek Road	55, 69, 72 & 118

Table 8.5 – Consent to Operate Plan acceptances

Pipeline licensee	Project name	Licence number
APA VTS Australia (Operations) Pty Ltd	Bannockburn CTM project	231
	Pakenham City Gate	75
	Station piping modification at Brooklyn compressor station (Stage 1)	81
	Station piping modification at Winchelsea compressor station	231
	Station piping modification at Brooklyn compressor station (Stage 2)	81
	Meter upgrade at Ballan CTM053	78
	Meter upgrade at Woodend CTM150	143
	Fast stop valve and vent valve replacement project at Gooding compressor station	75
	Meter upgrade at Healesville CTM033	141
	Meter upgrade at Longwarry CTM070	50
	Meter upgrade at Whittlesea CTM142	141
	Pipeline relocation for M80 widening project	81
	AusNet Gas Services Pty Ltd	Regulator upgrades at Stawell City Gate
Regulator upgrades at Horsham City Gate		184
Field regulator upgrade at Abel Street, Bendigo		189
Field regulator installation at Coburns Road, Melton		90
Field regulator installation at Dana St, Ballarat		188
Australian Gas Networks Limited	Pakenham City Gate	217
	Section pipeline replacement at WAG pumping station	61
	Mainline valve relocation project at Thompsons Road	11
	Pipeline modification at Andersons Reserve	203
Esso Australia Pty Ltd	Crude oil replacement pipeline	282
Exxon Mobil Aviation	Valve replacement project	119
Ixom Operations Pty Ltd	Pipeline modification for bi-directional flow project	277
Mobil Oil Australia Pty Ltd	Yarraville jet fuel pipeline (Revision)	283
Mobil Refining Australia Pty Ltd	Section 3 & 4 pipeline replacement program at Railway Terrace	73
	Jump-over spools connection project	72
	Stage 3 pipeline replacement program Section 1 & 2	73
	Pipeline repair replacement	74
Multinet Gas	Regulator upgrade project at Yarra Glen City Gate	210
	Pig trap modification	261
	Spool modification at Yarra Glen City Gate	210
South East Australia Gas Pty Ltd	Modification project at Mortlake PRMS	259
Viva Energy Australia Ltd	Pipeline replacement project	7
	Pipeline replacement project	8

8.2.1 Safety Management Plans (construction and repair)

All construction and repair projects undergo thorough reviews prior to acceptance, and ESV's installation and commissioning field audits generally find these reviews comply with the accepted Construction Safety Management Plan.

While some administrative noncompliance occurred, and there were some issues that licensees needed to address with respect to prefabricated components that needed to be corrected, there were no issues with final construction.

9. Education and partnerships

9.1 Ongoing initiatives

Pipeline land use management

The Victorian Government's response to the Independent Review of Victoria's Electricity and Gas Network Safety Framework (the Grimes review) was published on 10 January 2018. The Victorian Government has given its 'in principle' support for Recommendation 30, which recommended the formalisation of a working group to advise government about improving planning around high pressure gas pipelines. This was also a recommendation made in the Advisory Committee Final Report on Major Hazard Facilities, released in July 2016²¹.

In the interim, ESV continues to work with the Department of Environment, Land, Water and Planning (DELWP), local councils, and the pipeline industry to improve the management of pipeline encroachment. This includes a program of Road shows for planning authorities in 2018-19 to continue to raise awareness about the need to refer planning around pipelines to pipeline licensees.

Industry consultation meetings

ESV held two consultative forums with Non-licensed Gas Infrastructure companies during the reporting period. The agenda for the first consultative meeting delivered information and updates on the following topics:

- ESV's Gas and Pipeline Infrastructure Safety Division's current organizational structure.
- Lessons from the Dromana to Rye pipeline incident.
- Key performance indicators (KPI) for the Licensed Pipeline Industry Group.
- Safety Management Report and industry feedback.
- A Gas Asset Damage Mitigation Project update.
- ESV's investigation process.

The agenda for the second consultative meeting covered the following topics:

- Land development around pipelines.
- Clarification of the intent of Section 120 of the *Pipelines Act 2005*.
- A discussion of ESV's review of licensed pipeline KPI reporting.
- An update on the Safety Case regulations reset.
- The role of ESV's Head of Gas Intelligence, Gas and Pipeline Strategy.
- Third party encroachment and ESV's approach to enforcement.
- ESV's proposed 2018 auditing program.

21 https://www.planning.vic.gov.au/__data/assets/pdf_file/0014/47003/Major-Hazard-Facilities-AC-Final-Report.pdf.

9.2 New initiatives

New initiatives for the reporting period involved:

- the KPI reporting review
- corrosion protection reporting.

The KPI reporting review

ESV completed its re-development of a series of key performance indicators (KPI) for pipeline licensees.

The new KPIs, which are a leading indicator of critical control system performance:

- provide ESV with greater transparency and visibility when it comes to monitoring Victoria's transmission pipeline assets
- establish leading indicators of transmission pipeline system safety, integrity, and possible risk
- have been designed to assist ESV and its stakeholders with developing action plans to:
 - proactively identify licensed pipeline industry trends and emerging risks
 - provide an overview of gas pipeline industry safety compliance
 - provide a level of assurance that risks are being managed.

ESV also believes it is appropriate to:

- better align the Non-Natural Gas Licensed Pipeline Industry Group with other industry groups in terms of reporting frequency and framework due to the similar operational requirements of most hydrocarbon transmission pipelines and to provide uniform reporting objectives
- emphasise leading indicators that provide greater visibility for the safe operation of licensed pipelines.

Implementing metrics that focus on quantifiable measures will also assist ESV with recognising opportunities to educate the industry and influence its overall strategic safety goals.

To redevelop the KPIs, ESV facilitated six workshops between two industry groups attended by natural gas and non-natural gas licensed pipeline licensee representatives. Following these sessions, the new KPIs were agreed and their reporting framework established.

Corrosion protection reporting

Following a review of corrosion protection reporting mechanisms, ESV has now removed the regulatory requirement for 6 and 12 monthly reporting of complete and detailed cathodic protection survey results. Targeted corrosion protection metrics are now reported as part of KPI reporting and via annual Safety and Integrity reporting.

10. Compliance and enforcement

10.1 Incident investigation outcomes

ESV's Compliance and Enforcement Policy and its Compliance Strategy are both designed to ensure that community safety and environmental outcomes are achieved as part of ESV's objectives and functions as specified by the *Energy Safe Victoria Act 2005*, the *Electricity Safety Act 1998*, the *Gas Safety Act 1997*, and the *Pipelines Act 2005*.

To date, the vast majority of ESV's activity has been in cooperation with regulated entities, which in most instances have responded promptly and effectively. Where this was not the case, ESV took firmer action to ensure compliance.

Incident investigation outcomes

The most common cause of pipeline failure is due to third party interference, which continues to be ESV's most investigated issue. Through these investigations (which can incur an Infringement Notice or an Official Warning, or lead to legal action and prosecution) contractors are being made increasingly aware that pipeline strikes, unauthorised encroachments and near-misses have consequences for them as well as for public safety.

Incident reporting

ESV has valued the efficiency and openness demonstrated by responsible parties when they have reported incidents not otherwise defined as reportable by legislation.

This information adds to ESV's data collection and helps to drive its audit planning.

Similarly, ESV is also noting incidents outside ESV's jurisdiction, and relevant information is collated and, where necessary, referred to other regulators (like WorkSafe) to ensure all incidents are appropriately recorded.

Loss of containment

On 28 September 2016, Licensed Gas Transmission Pipeline 167 (PL-167) transporting natural gas from Dromana to Rye was struck and ruptured near the Arthurs Seat Road at Arthurs Seat.

The subsequent investigation resulted in the issue of an Infringement Notice, an Improvement Notice, and an Official Warning to the various parties involved.

Gas quality

While gas quality excursions were reported by AEMO they were not 'uncharacteristic' events²² and so were not investigated by ESV.

Unauthorised works within three metres of a licensed pipeline

Table 10.1 lists incidents involving unauthorised excavation within three metres of a licensed pipeline investigated during the reporting period²³.

22 'Uncharacteristic' events refer to a significant gas quality excursion. Short-term gas quality excursions occur from time-to-time but pose no risk to public safety.

23 See Table 16-1 for information about Official Warnings for damage to non-licensed gas infrastructure.

Table 10.1 – Unauthorised excavation within three metres of a licensed pipeline

Licensee	Licence number	Description	Date of occurrence	ESV action
Australian Gas Networks Limited	167	Licensed pipeline damaged by third party	28-Sep-2016	Improvement Notice ³ Infringement Notice ^{1,3} Official Warning ^{1,3}
AusNet Gas Services Pty Ltd	19	Unauthorised excavation within three meters of a licensed pipeline	29-Apr-2017	Official Warning ^{1,3}
Australian Gas Networks Limited	61	Unauthorised excavation within three meters of a licensed pipeline	15-May-2017	Infringement Notice ^{1,4}
Viva Energy Australia Ltd	8	Unauthorised excavation within three meters of a licensed pipeline	29-May-2017	Infringement Notice ^{1,3}
Multinet Gas	40	Unauthorised excavation within three meters of a licensed pipeline	13-Jul-2017	Closed without enforcement action
Viva Energy Australia	65	Unauthorised excavation within three meters of a licensed pipeline	6-Sep-2017	Closed without enforcement action
AusNet Gas Services Pty Ltd	57	Unauthorised excavation within three meters of a licensed pipeline	6-Sep-2017	Official Warning ¹
Australian Gas Networks Limited	49	Unauthorised excavation within three meters of a licensed pipeline	21-Sep-2017	Official Warning ¹
Viva Energy Australia	65	Unauthorised excavation within three meters of a licensed pipeline	11-Oct-2017	Official Warning ¹
Viva Energy Australia	65	Unauthorised excavation within three meters of a licensed pipeline	26-Oct-2017	Official Warning ¹
Australian Gas Networks Limited	208	Unauthorised excavation within three meters of a licensed pipeline	9-Nov-2017	Closed without enforcement action
Australian Gas Networks Limited	49	Unauthorised excavation within three meters of a licensed pipeline	21-Nov-2017	Official Warning ¹
Australian Gas Networks Limited	11	Unauthorised excavation within three meters of a licensed pipeline	11-Dec-2017	Official Warning ¹
AusNet Gas Services Pty Ltd	82	Unauthorised excavation within three meters of a licensed pipeline	21-Jan-2018	Closed without enforcement action
AusNet Gas Services Pty Ltd	17	Unauthorised excavation within three meters of a licensed pipeline	14-Feb-2018	Official Warning ¹
Viva Energy Australia	7	Unauthorised excavation within three meters of a licensed pipeline	20-Feb-2018	In progress

Licensee	Licence number	Description	Date of occurrence	ESV action
Australian Gas Networks Limited	49	Unauthorised excavation within three meters of a licensed pipeline	1-May-2018	Closed without enforcement action
Viva Energy Australia	65	Unauthorised excavation within three meters of a licensed pipeline	3-May-2018	Closed without enforcement action
Australian Gas Networks Limited	66	Unauthorised excavation within three meters of a licensed pipeline	4-May-2018	Official Warning ¹
AusNet Gas Services Pty Ltd	17	Unauthorised excavation within three meters of a licensed pipeline	8-May-2018	Official Warning ¹¹
Multinet Gas	100	Unauthorised excavation within three meters of a licensed pipeline	22-May-2018	Closed without enforcement action
Australian Gas Networks Limited	43	Unauthorised excavation within three meters of a licensed pipeline	7-Jun-2018	Closed without enforcement action
Mobil Refining Australia Pty Ltd	74	Licensed pipeline damage	26-Jun-2018	Closed without enforcement action ²
Notes:				
1. This represents action taken by ESV against a third party (not the licensee).				
2. The incident occurred inside the facility and so was referred to WorkSafe.				
3. The event occurred prior to the reporting period but action occurred during the reporting period.				
4. Two Infringement Notices were issued as a result of this incident.				

ESV's monitoring and investigation strategy focuses on ensuring regulated entities manage their compliance with Section 7 of AS 2885.3-2012 involving:

- third-party pipeline awareness (for example, liaison programs with community, councils, landowners, and emergency services)
- external interference detection (pipeline patrolling, Dial Before You Dig services, and reporting to ESV for investigation where necessary)
- external interference control (for example, controlling activities near pipelines and reviewing third-party work proposals and encroachment/location classes), including issuing effective Conditions of Work and authorising proposed third-party work in accordance with Section 118 of the *Pipelines Act 2005*.

11. Focus and priorities for 2018-19

ESV's focus and priorities for 2018-19 will include cathodic protection system audits and in particular that pipeline licensees ensure:

- cathodic protection systems are maintained and perform their required function of protecting pipelines from threats like corrosion
- operation and monitoring criteria for cathodic protection complies with AS 2832.1
- the continuity of corrosion protection systems
- the competency of personnel producing and evaluating cathodic protection reports.

Non-licensed Gas Infrastructure



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12. Introduction

12.1 The Non-licensed Gas Infrastructure Industry Group

The Non-licensed Gas Infrastructure Industry Group, involving natural gas distribution, reticulated LP GAS and LP Gas retail, landfill biogas, LNG and CNG, comprises companies that operate:

- the distribution networks that reticulate natural gas (including CNG) supplied from the transmission system to customers and distribution pipelines
- landfill and biogas pipelines from capture points to power generation facilities
- LP Gas reticulation networks supplying gas to small communities and subdivisions
- storage and handling facilities at LP Gas depots
- LNG off-network supplies to customers at dedicated industrial and commercial sites.

Table 12.1 lists the organisations in this industry group as at 1 July 2018.

Table 12.1 – Non-licensed Gas Infrastructure

Natural gas distribution
AusNet Gas Services Pty Ltd
Australian Gas Networks Limited
Enwave Victorian Networks Pty Ltd
Multinet Gas Distribution Partnership
Reticulated LP Gas
AusNet Electricity Services Pty Ltd
Elgas Ltd
Indigo Shire Council
Mount Hotham Alpine Resort Management Board
Westernport Region Water Authority
Landfill, biogas, LNG and CNG
AGL Energy Sales & Marketing Limited (Werribee)
City of Whittlesea
Clean Energy Distribution Pty Ltd
Energy Developments Limited
Enwave Regional Energy (Victoria) Pty Ltd
LP Gas retailer
Elgas Ltd
Origin Energy (LPG) Limited
Supagas Pty Ltd

12.2 Non-licensed Gas Infrastructure Industry Group changes

Changes to the Non-licensed Gas Infrastructure Industry Group's licence holders during the reporting period involved the following:

- Acquisition of Vic LPG Pty Ltd by Supagas Pty Ltd.
- Acquisition of AGL Energy Sales and Marketing Pty Ltd (Werribee Bio Gas) by Sustainable Energy Infrastructure Pty Ltd.

12.3 Focus and priorities during 2017-18

ESV focused on policy and engagement during the reporting period, as well as Safety Case acceptance, contractor management, industry engagement, and the Gas Asset Damage Mitigation (GADM) Project.

Policy and engagement

Development of the draft LP Gas industry regulatory policy outlining jurisdictional boundaries between the Dangerous Goods Act (administered by WorkSafe Victoria) and the Gas Safety Act (administered by ESV) has been ongoing, with the aim to ensure that there are no gaps or overlaps between the two jurisdictions.

See Section 15.3 for more information.

Safety Case acceptance

A key focus for the reporting period was the review and acceptance of gas distribution company safety cases. The AusNet Gas Services Pty Ltd Safety Case acceptance audit was conducted on 6 March 2018 with acceptance granted on 29 March 2018. The Multinet Gas Safety Case acceptance audit was conducted on 29 to 31 August 2017, leading to provisional acceptance being granted on 6 October 2017 and full acceptance on 23 July 2018.

Contractor management

All three gas distribution businesses extensively use contractors (for example, for the construction of new gas mains and services and various maintenance activities), and ESV focused on the management systems that govern contractors, such as contractor evaluation and selection, contractor supervision, training and competency, and monitoring and auditing. See Section 13.2.3 for more information.

Gas Asset Damage Mitigation Project

Phase 1 of the Gas Asset Damage Mitigation (GADM) Project was completed in early June with the recommendations and areas for further investigation disseminated to industry shortly afterwards.

See Section 3 for information about reportable safety incidents, Section 15.1 for more information about the GADM Project, and Section 13.1.1 for information about other incident statistics, third-party damage, and damage to mains and services.

13. Non-licensed Gas Infrastructure – Monitoring, auditing and inspections

13.1 Compliance documentation, self-reporting and KPIs

ESV has agreements with regulated entities (underpinned by legislation) to provide safety-related information, typically covering:

- mains renewal programming and progress
- incident statistics, including reports of damage to infrastructure, near misses, and interruptions to supply
- inspections, audits, and unauthorised third-party encroachment
- periodic compliance reporting.

This information helps to demonstrate compliance with legislation and standards as well as identifying potential improvements in dealing with actual incidents. See Section 10.1 for information about serious incident investigations that may lead to enforcement action.

13.1.1 Incident statistics

Third-party damage

ESV completed 40 incident investigations during the reporting period involving unauthorised excavation within three meters of a licensed pipeline and damage to gas mains and services, which resulted in the issue of 20 Official Warnings²⁴.

ESV also focused on engaging and educating entities that work around gas assets, including the Water Authorities Board and electricity distribution businesses.

A review of data from the last 10 years shows no substantive reduction in third-party damage to mains and services, and the number of hits has fluctuated from 2,900 to 3,600 annually with no clear downward trend. To address this, ESV has initiated a project to further understand the cause of third party damage and develop a strategy to address the issue.

See Section 15.1 for more information about the GADM Project ESV initiated to identify the root causes of damage to gas mains and distribution services and to develop strategies to address the issue.

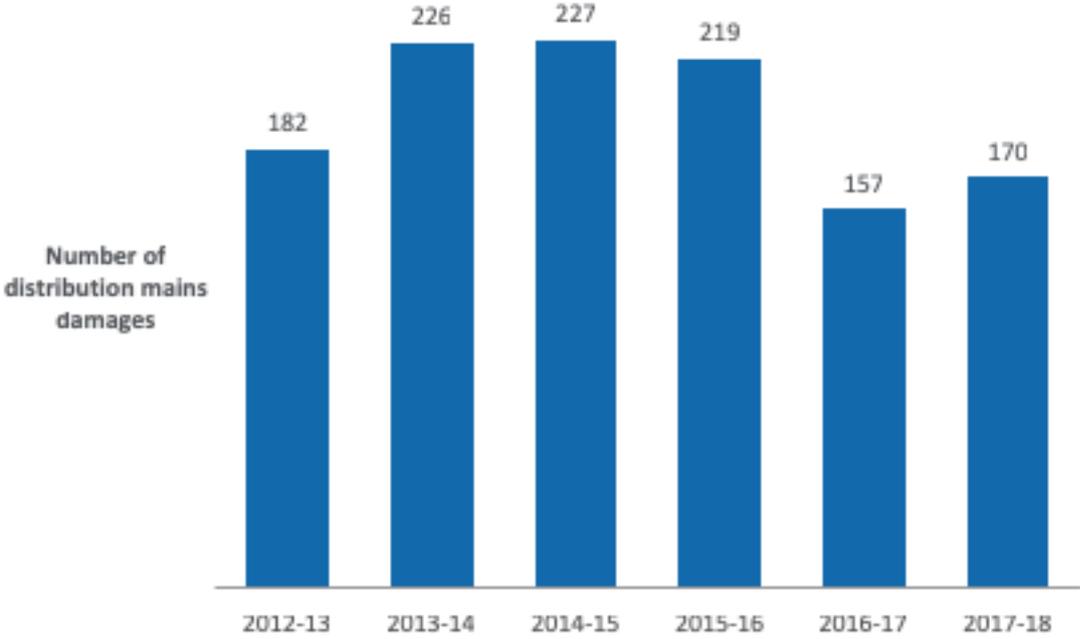
See also Section 3 for more information about reportable safety incidents.

Damage to mains

ESV recorded 170 incidents of third party damage to gas mains during the reporting period, which is lower than the three-year rolling average of 201, but higher than the 157 incidents recorded during 2016-17.

²⁴ Eleven for unauthorised excavation within three metres of a licensed pipeline and nine for damage to non-licensed gas infrastructure.

Figure 13.1 – Damaged mains (less than 1,050 kPa) since 2012-13



ESV has identified a series of ongoing issues that are contributing to the problem of damaged mains (and gas assets in general) including:

- inaccurate or inadequately detailed as-built drawings
- a lack of hand proving²⁵ by third parties to confirm the exact location of assets
- the traceability of underground assets, given a lack of tracer wire or training for personnel tasked with finding pipes and locating services
- inconsistent depth of cover
- mains deviations not being marked on plans
- gas assets not being properly identified on plans (for example, being listed as encased in an old main but actually being buried beneath it).

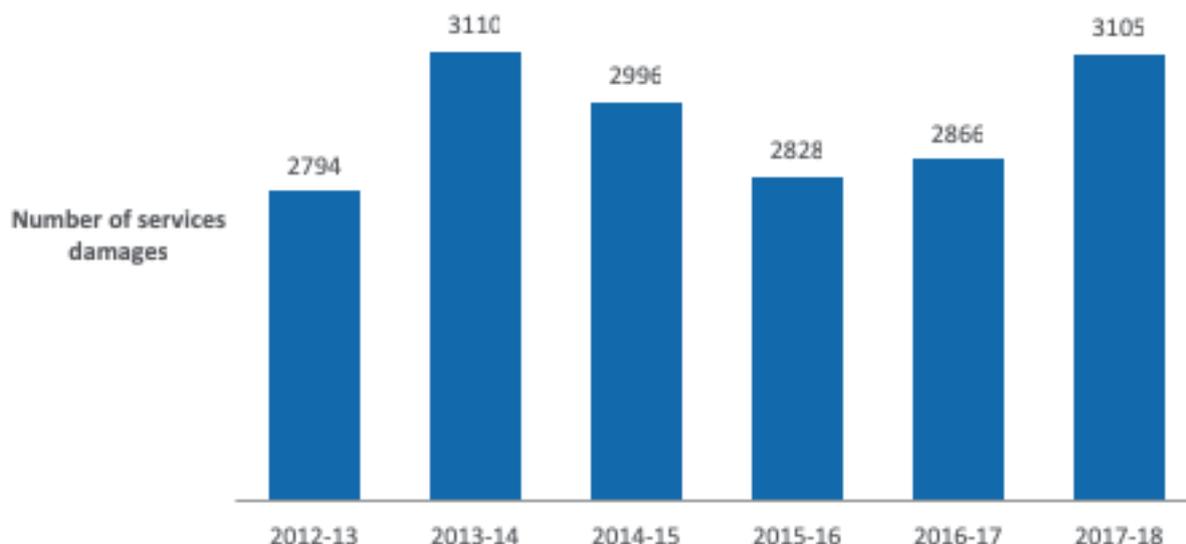
There also appears to be a general misconception that a response from an inquiry to the Dial Before You Dig service represents a tacit approval to commence work in the vicinity of gas infrastructure. This is not the case and specific approval is needed from the gas asset owner.

Damage to services

Damage to services has worsened during this reporting period, with 3,105 incidents recorded, which represents an 8% increase since 2016-17.

²⁵ Excavating around a pipeline without the use of machinery.

Figure 13.2 – Damaged services (less than 1,050 kPa) since 2012-13



Controls that may contribute to reducing damage to services include:

- a broad education campaign on working safely around underground gas assets
- maintaining a high quality of installation workmanship to ensure minimum engineering and construction standards are maintained by the asset owner
- ensuring that asset owners implement effective controls around asset identification.

Loss of supply

There were 49 incidents of a loss-of-supply due to third-party damage that affected more than five customers. Often caused by third party damage to assets, ESV anticipates that loss of supply incidents will also be addressed by the GADM Project (see Section 15.1 for more information).

13.1.2 Emergency response exercises

Non-licensed Gas Infrastructure Industry Group members are expected to undertake a minimum of two emergency response exercises in any (rolling) 12-month period²⁶.

Emergency response exercises and their corresponding reports are intended to demonstrate that:

- responsible persons, as identified in the accepted Emergency Response Plan, will be directly involved in the exercise
- emergency response exercises (with supporting documentation) will reflect a realistic facility/pipeline incident event that tests response and recovery protocols
- emergency response exercise reporting will include 'lessons learned' recommendations and any actions that will need to be taken to ensure ongoing improvement.

Table 13.1 lists the regulated entities that did not conduct two emergency response exercises during the reporting period as per Safety Case requirements.

²⁶ ESV does not count actual incidents as emergency response exercises.

Table 13.1 – Regulated entities failing to conduct required emergency response exercises

Industry group segment	Regulated entity
Natural Gas Distribution	None
Reticulated LP Gas	Mount Hotham Alpine Resort Management Board
	Westernport Region Water Authority
Landfill, Biogas, LNG and CNG	Clean Energy Distribution Pty Ltd
	AGL Energy Sales & Marketing Ltd (Werribee)
	City of Whittlesea
	Energy Developments Limited
LP Gas Retail	None

13.1.3 Mains renewal program statistics

The initiative to replace older, low-pressure pipes with high pressure systems is an ongoing mains renewal program (MRP) being undertaken by the three metropolitan gas distribution businesses (DB).

The MRP provides a leading role in the safe and reliable supply of natural gas to end-users, and each gas DB has agreed a program with the Australian Energy Regulator (AER) to renew pipework in accordance with predetermined target. The 2013–2017 replacement program replaced a total of 1,598 kilometres of gas mains. The 2018–2022 program is now operating within its agreed AER submission.

Forming an important part of the overall asset maintenance plan aimed at improving service reliability and supply, ESV is monitoring the MRP to ensure that the quality of work undertaken:

- meets the prescribed Australian Standards
- accords with the procedures that form part of each asset owner’s accepted Safety Case.

13.1.4 Periodic compliance reporting

Agreements are in place with various regulated entities for the periodic submission of KPI reports, which are expected to be submitted to ESV within 20 business days from the end of each quarter.

Table 132 lists the regulated entities that were late to submit KPI quarterly reports on more than one occasion during the reporting period.

Table 13.2 – Periodic KPI quarterly report late submissions

Industry group segment	
Natural Gas Distribution	None
Reticulated LP Gas	AusNet Electricity Services Pty Ltd
	Mount Hotham Alpine Resort Management Board
	Westernport Region Water Authority
Landfill, Biogas, LNG, and CNG	Clean Energy Distribution Pty Ltd ¹
	AGL Energy Sales & Marketing Ltd (Werribee) ¹
	City of Whittlesea ¹
	Energy Developments Limited
LP Gas Retail	Supagas Pty Ltd
	Origin Energy (LPG) Limited ¹
Notes:	
1. No KPI reports were received during the previous reporting period.	

13.2 ESV audits

13.2.1 Compliance documentation

Regulated entities are required to have a range of up-to-date compliance documents²⁷ that detail the entity's safety management framework. These documents provide the basis for ESV's ongoing compliance audits.

Compliance requirements specific to this industry group include:

- Safety Cases
- as-built drawings and route plans
- formal delegations²⁸
- Asset Management Plans
- Emergency Response Plans
- registration/procedures for Dial Before You Dig²⁹.

13.2.2 Audit plans

ESV audit plans are designed to test compliance with Safety Cases, in line with the risk-based strategic audit framework.

High-level audit findings are categorized in one of two ways:

- 'Observations' represent an isolated lapse or failure to comply with a specified requirement with the potential to lead to non-conformance and must be addressed within two months.
- 'Non-conformances' represent a failure to comply with specified requirements and must be addressed immediately or as otherwise agreed with ESV.

²⁷ Legislation and standards require the revision of Safety Cases (including Asset Management Plans and Emergency Response Plans) at least every five years to the satisfaction of ESV.

²⁸ The person responsible for the operation of a facility as declared under the Gas Safety Act or as licensed under the Gas Industry Act.

²⁹ Landfill biogas, natural gas distribution, CNG and LP GAS reticulation networks are only required to register as a member with DBYG and follow its third-party response requirements where the assets are not fully contained within a private property.

As per ESV’s audit practise:

- auditees must provide formal notification when all audit findings have been addressed
- an audit remains open until ESV is satisfied that the auditee has adequately addressed the audit findings (with supporting evidence).

An audit’s progress is also categorized in one of three ways:

- ‘In progress’ refers to a recent audit in the process of having a rectification plan agreed or audit findings rectified.
- ‘Incomplete’ refers to an old audit for which no evidence has been provided that the audit’s findings have been rectified.
- ‘Closed’ refers to an audit response that has rectified the audit’s findings.

Audits conducted for this industry group include:

- compliance audits (focussing on contractor management audits)
- field audits.

13.2.3 Compliance audits

Compliance audits are systematic reviews of an entity’s safety management framework and are designed to ensure compliance with specific legislative clauses and Australian Standards.

In this reporting period, ESV concentrated on auditing contractor management compliance.

Contractor management compliance audits

ESV’s contractor management compliance audits were aiming to:

- gain assurance that Safety Case/Safety Management Plan documentation accurately describes the contractor management process
- ensure that the systems and processes for contractor management meets the minimum requirements of the relevant legislation and standards including AS4645:2008, AS2885:2012, and the Gas Safety Act
- ensure that the contractors being appointed are undertaking field activities in accordance with approved construction and operational procedures and are being appropriately supervised.

Table 13.3 lists the contractor management compliance audits conducted during the reporting period.

Table 13.3 – Contractor management compliance audits

Regulated entity	Non-conformances	Observations	Status
Australian Gas Networks Limited	6	4	In progress
Multinet Gas Distribution Partnership	2	4	Closed ¹
AusNet Gas Services Pty Ltd	0	0	Closed ¹
Notes:			
1. This audit topic was combined with the Safety Case acceptance.			

The audits revealed a number of common observations including:

- an incomplete audit framework that should otherwise capture all facets of contractor management
- inadequate supervision of contractor activities on the ground.

13.2.4 Field audits

ESV inspectors conducted a total of 119 field audits during the reporting period involving the four Victorian natural gas distribution businesses. The audits focused on the gas mains replacement activities within Metropolitan Melbourne, and gas mains and service construction and commissioning in country Victoria. These works are often conducted by sub-contractors who follow processes and procedures set out by asset owners. Areas where audit findings identified issues included:

- Occupational Health and Safety and Environment (OH&SE) practices
- construction to engineering standards
- fusion practices
- live gas works.

Figure 13.3 shows a breakdown of the areas where issues were identified³⁰.

Figure 13.3 – Natural gas distribution business field audits

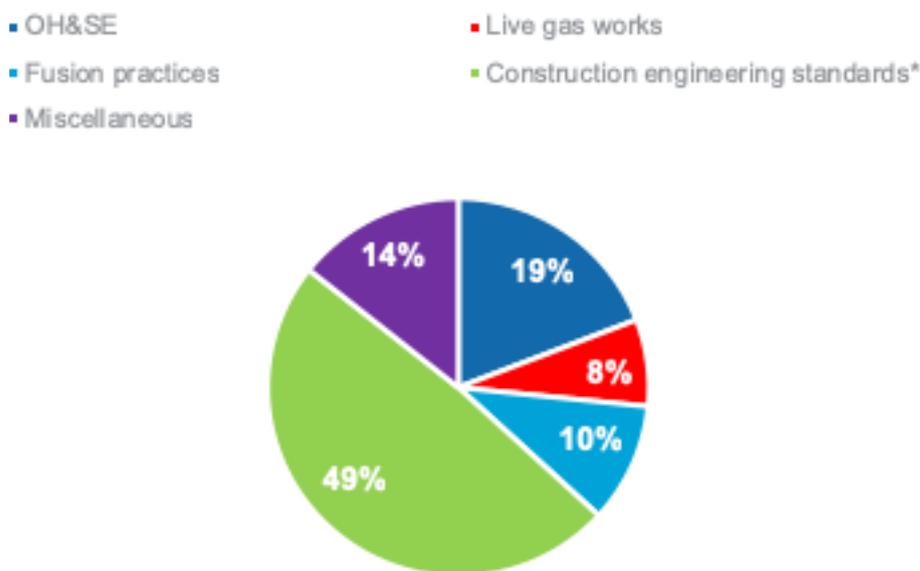


Table 13.4 – Field audit finding categories and incidences found

Finding category	Definition	Incidences
OH&SE	Includes issues like onsite documentation, fire extinguishers, personal protective equipment (PPE), traffic management, pedestrian access, electrical testing, equipment calibration, training and competency.	75
Fusion practices	Includes issues like stop off, purging, gas detector use, manometer use, squash off, insertion bushes, cut out of mains, and cross bonding.	40
Live gas works	Includes issues like butt fusion practices, saddle fusion practices, use of line up clamps, socket fusion practises, electro fusion practices, and test welds.	29
Construction engineering standards	Includes issues like depth of cover, tracer wire usage, point loading, marker tape, asset alignment, pipe damage, pipe storage, gas meter placement, pressure testing, and service abandonment.	191
Miscellaneous	Findings that do not fall into any of the above categories.	56

³⁰ Numbers relating to unprotected risers, yellow clips, missing bollards and composite pipe in external areas were not included due to their high rate of occurrence. In response, the distribution businesses have agreed to either change their practices or report issues to the relevant authority.

13.2.5 Responses to audit

Work site attendance

Where required, ESV has directly addressed any issues regarding cooperation from asset owners when inspectors attend construction and operational work sites.

While always working to liaise with licensees and gas companies, and complying with induction requirements and other site access conditions wherever possible, ESV inspectors have a right of access to work sites (where, in the inspector's opinion, safety or accepted Safety Case compliance is a concern).

14. Non-licensed Gas Infrastructure – Acceptances and approvals

14.1 Safety Case acceptance

Legislation requires Safety Cases to be revised at least every five years to the satisfaction of ESV. In most cases, new entrants and existing companies work closely with ESV to ensure the content and quality of their submissions is appropriate for a particular facility, significantly reducing the number of re-submissions required before acceptance³¹.

Table 14.1 lists the Safety Cases due (or overdue) for submission to ESV as at 30 June 2018.

Table 14.1 – Safety Case acceptance (Non-licensed Gas Infrastructure)

Industry group/regulated entity	Date last accepted	Next revision due	Next revision submitted
Natural gas distribution			
Australian Gas Networks Limited	02-Aug-2010	02-Aug-2015	Yes
Multinet Gas Distribution Partnership	06-Oct-2017	28-Sep-2018	Yes
AusNet Gas Services Pty Ltd	29-Mar-2018	29-Mar-2023	No
Reticulated LP GAS			
Elgas Ltd	14-Oct-2013	14-Oct-2018	No
Mount Hotham Alpine Resort Management Board	19-Feb-2014	19-Feb-2019	No
Westernport Region Water Corporation	25-Feb-2014	25-Feb-2019	No
Indigo Shire Council	23-Jan-2015	23-Jan-2020	No
AusNet Gas Electricity Services Pty Ltd	29-Mar-2018	29-Mar-2023	No
Landfill biogas, LNG, an CNG			
Energy Developments Limited	17-Jan-2013	17-Jan-2018	Yes
Clean Energy Distribution Pty Ltd	31-May-2013	31-May-2018	No
City of Whittlesea	17-Apr-2014	17-Apr-2019	No
AGL Energy Sales & Marketing Limited (Werribee)	12-Nov-2015	12-Nov-2020	No
Enwave Regional Energy (Victoria) Pty Ltd	28-May-2018	28-May-2023	No
LP Gas Retailer			
Origin Energy (LPG) Limited	18-Dec-2012	18-Dec-2017	Yes ²
Supagas Pty Ltd	20-Jun-2013	20-Jun-2018	Yes ²
Elgas Ltd	14-Oct-2013	14-Oct-2018	No ²
Notes:			
1. Submitted documents may not have been accepted for a range of different reasons that include ESV not yet having reviewed the submission or deeming the submission unsatisfactory. See Section 14.1.1 for more information.			
2. Safety Case acceptance has been delayed in lieu of ESV's clarification of the regulatory safety framework for the LP Gas industry under the <i>Gas Safety Act 1997</i> .			

³¹ Gas companies declared under Section 5 of the Gas Safety Act or that hold a license issued to a gas company within the meaning of the Gas Industry Act should be familiar with ESV's 2012 guidelines for preparing a Safety Case.

14.1.1 Safety Case issues

While ESV continues to engage with the preparation of Safety Cases, industry's understanding of the requirements and the intent underpinning the Gas Safety (Safety Case) Regulations 2008 is generally satisfactory. ESV has also developed a new guideline, Gas Safety Case Preparation and Submission for Facilities and Pipelines, to assist with the preparation and submission of a Gas Safety Case (GSC)³².

Safety Case revisions for the three declared LP Gas Retailers are on hold until ESV's policy 'LP Gas Industry Jurisdiction and Regulatory Requirements under the Gas Safety Act' has been finalized.

14.1.1 Safety Case submission

Typical concerns about the production of Safety Cases include:

- the methodology applied to risk assessments where risk rankings have only been assigned to the 'highest consequence' rather than 'all credible' outcomes
- the likelihood being assigned to risks (of asset damage) being inconsistent with the data ESV collects
- insufficient details about contractor management and oversight.

³² This guideline was published in October 2018. A guideline for completing a Safety Management Plan (SMP) in accordance with the Pipeline Regulations is currently being developed.

15. Non-licensed Gas Infrastructure – Education and partnerships

15.1 The Gas Asset Damage Mitigation Project

Energy network safety has been a concern for the Victorian community and a high priority for successive Victorian governments.

Third party hits on gas mains and services create unsafe situations for the community, cause disruptions to supply, and create significant economic costs for network owners that flow onto rate payers.

With the annual number of third party hits on gas mains and services (combined) fluctuating between 2,900 and 3,600, which is unacceptably high, and with no clear trend downwards, ESV initiated the Gas Asset Damage Mitigation (GADM) Project to examine possible causes and investigate what can be done to reduce these numbers.

Project approach

The GADM project, which commenced in March 2017, is taking a holistic approach to the issue of gas asset hits. To gain a thorough understanding of the issue and identify potential improvements and solutions, the project consulted as widely as possible with the following stakeholders:

- metropolitan gas distribution businesses
- third parties that have frequently hit gas assets
- water authorities
- electricity distribution businesses
- industry associations
- contractors working on gas assets
- the VicWater Underground Gas Safety Working Party.

The project's first phase examined the findings from ESV's field audit program (from September 2017 to March 2018), which involved ESV inspectors conducting a total of 63 field audits spread across the gas distribution business (DB) mains replacement and new subdivision activities. The audits focused on the work practices and work quality of the gas DB service providers and subcontractors, and used the Australian Standards and each gas DB's engineering and construction standards as a benchmark.

Project focus

Stemming from ESV's consultation sessions and audits, the GADM Project's first phase focused on the following areas:

- **Controls** – the project reviewed the controls implemented by the gas DBs to prevent third party gas asset hits, focussing on the five controls deemed the most critical to determine their effectiveness and fitness for purpose.
- **Education** – the project investigated potential target audiences, the contents of messaging, and various different media platforms to establish whether a campaign designed to educate people on how to work safely around gas assets can reduce gas asset hits.
- **Enforcement** – the project reviewed the potential for an enhanced enforcement strategy that will ensure consistency, transparency and accountability in ESV's approach to gas asset hits as the independent technical regulator responsible for gas and pipeline safety in Victoria.

Outcomes

The project's first phase established a range of recommendations for controls, education and enforcement. The project's second phase will involve consultation with the DBs on the recommendations identified from phase one. At the end of the second phase, ESV will present the project's conclusions to industry for consultation, and publish them in ESV's 2018-19 Safety Management Report.

See also Section 13.1.1 for more information about the incident statistics for the reporting period and third-party damage to mains and services.

15.2 The annual gas emergency management exercise

Exercise Tamar, the annual Gas Emergency Management Consultative Forum (GEMCF) exercise, was held on 17 April 2018. The exercise's focus was on the gas curtailment process. The gas industry is rarely required to carry out curtailment, making these exercises a valuable opportunity to review the effectiveness of the many processes and levels of knowledge across the many organisations required to deliver emergency curtailment.

The exercise format comprised eight presentations with round table discussions and testing of various curtailment process scenarios covering curtailment triggers, communications, the interdependency of processes between organisations, and consequence management considerations.

Objectives

Objectives set for the exercise included:

- exploring the gas curtailment process as it is applied by different members of the GEMCF
- assessing the gas curtailment processes with reference to a specific curtailment scenario within the multi-agency environment
- examining the consequence management requirements resulting from a gas curtailment scenario
- exploring the operational relationships with other procedures and processes during an emergency requiring gas curtailment.

Successes

The exercise succeeded in meeting its objectives and associated outcomes, as well as successfully identifying several key areas for improvement that provide a snapshot of the outcomes:

- **Response processes** – the exercise format allowed an end-to-end view of curtailment and highlighted some opportunities for improvement in the interactions between AEMO, government and industry.
- **Cooperation and contribution** – information was openly shared and key issues frankly discussed, with the level of cooperation and openness demonstrating the good working relationship between distribution and retail members, which was commended by Emergency Management Victoria (EMV) representatives.
- **Actions** – the exercise provided a number of recommendations that will facilitate a clear plan of action for the continuous improvement of the curtailment process.

Observations

Observations stemming from the exercise included the following:

- Time pressure – due to the Declared Transmission System’s (DTS) limited line pack, the time to respond to a curtailment situation under some scenarios may be four hours or less, depending on demand, location of incidents etc. This then puts pressure on:
 - retailers to ensure Tariff D customer ‘responsible representatives’ are able to promptly follow curtailment instructions
 - DELWP, ESV and AEMO to identify the most appropriate mechanism to achieve curtailment. There are three categories of curtailment, each with different regulatory options to initiate the curtailment process: Voluntary Curtailment; Mandatory (Supply Security); and Mandatory (Safety).
- The approach (or combination of approaches) used to initiate curtailment will depend on the nature of the incident.
- Limited feedback – individual customer real-time gas usage is difficult to gauge, which limits the ability of the gas DBs and AEMO to verify that curtailment instructions have been complied with.

Areas for improvement

The gas curtailment guidelines, curtailment tables and supporting processes used to manage curtailment require a detailed review due to market and system profile changes since the current processes were implemented. This will ensure these processes are suitable for current conditions and effective and timely implementation of curtailment can occur in the future.

This review is currently being undertaken by a GEMCF working group (led by AEMO) as part of the review process for the Gas Emergency Protocol as per Section 53 of the *National Gas (Victoria) Act 2008*.

15.3 LP Gas governance

Development of the draft LP Gas industry regulatory policy³³ has been ongoing, with the aim to ensure that there are no gaps or overlaps between jurisdictions. After numerous meetings between ESV and WorkSafe Victoria, a policy outlining jurisdictional boundaries was agreed and consultation with known LP Gas supply businesses³⁴ was subsequently held on 27 June 2018.

Following this consultation:

- ESV released the draft ‘LP Gas Industry Jurisdiction and Regulatory Requirements under the Gas Safety Act’ policy for stakeholder comment.
- Consistent with recommendations from the Grimes review, ESV’s Risk, Regulatory Planning & Policy (RRPP) division drafted proposed updates to the Memorandum of Understanding (MOU) with the Australian Energy Regulator (AER), which were provided to the AER on 14 June 2018³⁵.
- Preliminary discussions with WorkSafe Victoria were held with respect to updating the MOU, which expires in December 2018, to include definitions of the jurisdictional boundaries between the Gas Safety Act and the Dangerous Goods Act.

33 The policy outlines the jurisdictional boundaries between the Dangerous Goods Act administered by WorkSafe Victoria and the Gas Safety Act administered by ESV.

34 This included Elgas, Origin, Equaliser Gas Services, Pacific Gas, Yarra Valley Gas, Independent LP Gas Supplies, and David Walsh Gas.

35 ESV is still awaiting the AER’s review and comment.

15.4 Ongoing initiatives

Jurisdictional and regulatory policy

ESV intends to finalize its LP Gas Industry Jurisdiction and Regulatory Requirements policy once feedback has been received and reviewed. ESV will then be able to determine the:

- technical safety prerequisites for recommending to government that non-declared LP Gas Retailers should be declared gas companies
- required content for a declared LP Gas Retailer's Gas Safety Case.

Industry consultation meetings

ESV held two consultative forums with Non-licensed Gas Infrastructure companies during the reporting period. The agenda for the first consultative meeting covered the following topics:

- ESV's Gas and Pipeline Infrastructure Safety Division's current organizational structure.
- ESV's required procedures and systems for LP Gas Retailer gas connection processes.
- Items required in a gas company's Gas Safety Case Facility Description.
- A description of a gas company Emergency Response Team's roles and responsibilities.
- An update on the Gas Safety (Safety Case) Regulations 2008 revision.
- ESV's investigation process.

The agenda for the second consultative meeting covered the following topics:

- An update on the progress of the Gas Safety (Safety Case) Regulations 2008 revision.
- Feedback on the recent GEMCF Emergency Response Exercise (Exercise Tamar 2018).
- The role of ESV's Head of Gas Intelligence, Gas and Pipeline Strategy.
- The proposed jurisdictions to be covered by WorkSafe Victoria and ESV for LP Gas Retailers.
- Why gas quality risk is to be included as a factor for recommending to government that LP Gas Retailers be declared gas companies.
- ESV's proposed 2018 auditing program.

15.5 New initiatives

New initiatives for the reporting period involved:

- An ESV and WorkSafe Victoria Memorandum of Understanding update
- Augmented gas company audits
- ESV Information Sheet No. 33 training
- Explaining the Gas Safety (Safety Case) Regulations 2018.

ESV and WorkSafe Victoria Memorandum of Understanding update

An updated Memorandum of Understanding (MOU) between ESV and WorkSafe Victoria is to be produced with the aim of ensuring that all facets of LP Gas industry safety are covered.

Augmented gas company audits

ESV will augment its gas company audits by auditing:

- every gas company with an accepted Gas Safety Case at least once a year
- new, revised or updated Gas Safety Cases
- gas companies with unchanged Gas Safety Cases on their emergency preparedness and the new-to-industry connection process (where relevant).

ESV will also develop electronic audits, using applications like Survey Monkey, which will be e-mailed to all gas companies in May and June of each year with requests for information about:

- the company's current ownership, trading name, organizational structure, and contact details
- emergency response exercises conducted or to be conducted during the reporting period
- quarterly KPI reports
- other relevant information as required.

Information required in quarterly KPI reports is also to be reviewed and updated as required.

ESV is also undertaking a cathodic protection (CP) reporting compliance audit program to ensure compliance with legislation and Australian Standards (for example, AS2885 and AS2832). This will facilitate a transition to CP reporting by exception.

ESV Information Sheet No. 33 training

ESV's Gas Operations Division has offered to provide training (as required) on ESV's Information Sheet No. 33, "Gas Installation Notification" to any gas company taking on new-to-industry gas connections.

Explaining the Gas Safety (Safety Case) Regulations 2018

ESV will explain relevant parts of the Gas Safety (Safety Case) Regulations 2018, such as the exemption process, at each of the two annual ESV consultative meetings for all gas companies.

16. Non-licensed Gas Infrastructure – Compliance and enforcement

ESV's Compliance and Enforcement Policy and its Compliance Strategy are designed to ensure that community safety and environmental outcomes are achieved as part of ESV's objectives and functions as specified by the *Energy Safe Victoria Act 2005*, the *Electricity Safety Act 1998*, the *Gas Safety Act 1997*, and the *Pipelines Act 2005*.

16.1 Incident investigation outcomes

The most common cause of pipeline failure is due to third party interference, which continues to be ESV's most investigated issue. ESV's investigations and their outcomes (which can lead to prosecutions, Infringement Notices, Improvement Notices, or Official Warnings), are making contractors increasingly aware that interference with gas assets have consequences for them and for public safety.

Table 16.1 lists the instances of damage to non-licensed gas infrastructure investigated during the reporting period³⁶.

Table 16.1 – Damage to non-licensed gas infrastructure

Regulated entity	Description	Date of occurrence	ESV action
Australian Gas Networks Limited	Third party asset damage	13-Jun-2017	Official Warning ¹
		20-Jun-2017	Infringement Notice ¹
		29-Jun-2017	Official Warning ¹
Multinet Gas Distribution Partnership	Third party asset damage	18-Jul-2017	Infringement Notice ¹
Australian Gas Networks Limited	Third party asset damage	21-Sep-2017	Official Warning ¹
Multinet Gas Distribution Partnership	Third party asset damage	30-Nov-2017	Infringement Notice ¹
Australian Gas Networks Limited	Third party asset damage	18-Dec-2017	Official Warning ¹
		9-Jan-2018	Official Warning ¹
		3-Feb-2018	Official Warning ¹
		7-Feb-2018	Official Warning ¹
AusNet Gas Services Pty Ltd	Non-compliant installation	29-Mar-2018	Official Warning ¹
Australian Gas Networks Limited	Third party asset damage	15-Mar-2018	Official Warning ¹
Notes:			
1. This represents action taken by ESV against a third party (not the regulated entity).			

³⁶ This only represents investigations where enforcement action was taken. Eight other investigations were conducted that did not result in enforcement action. See Table 10-1 for information about Official Warnings for unauthorised excavation within three metres of a licensed pipeline.

17. Non-licensed Gas Infrastructure – Focus and priorities for 2018-19

ESV's focus and priorities for 2018-19 will include the following:

- A focus on the training and competence of personnel responsible for a gas company's Gas Safety Case.
- Reviewing the quarterly KPI reports, gas company emergency preparedness, and gas company obligations under the new Gas Safety (Safety Case) Regulations 2018.
- Field audits involving new estate mains, service, and meter installations, with a focus on ensuring that the installation of gas infrastructure and other civil works in the vicinity of gas infrastructure is conducted to Australian Standards and accords with relevant procedures.

Natural Gas Retail



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18. Natural Gas Retail – Introduction

18.1 The Natural Gas Retail Industry Group

Table 18.1 lists the businesses involved in retailing natural gas in Victoria as at 1 July 2018.

Table 18.1 – Natural Gas Retail

Natural Gas Retail
AGL Sales Pty Limited
Alinta Energy Retail Sales Pty Ltd
Click Energy Pty Ltd
CovaU Pty Ltd
EnergyAustralia Pty Ltd
ERM Power Retail Pty Limited
Esso Australia Resources Pty Ltd
GloBird Energy Pty Ltd
Ipower 2 Pty Limited and Ipower Pty Limited ¹
Lumo Energy Australia Pty Ltd ²
M2 Energy Pty Ltd ³
Momentum Energy Pty Ltd
Origin Energy Retail Limited
Origin Energy Retail Ltd (Mildura) & Origin Energy (Vic) Pty Ltd
Powershop Australia Pty Ltd
Red Energy Pty Limited
SparQ Gas Pty Ltd ⁴
TasGas Retail Pty Ltd
Weston Energy Pty Ltd
Notes: 1. Trading as Simply Energy. 2. Combining Infratil Energy Australia and Lumo Energy Australia Pty Ltd for reporting purposes. 3. Trading as Dodo Power and Gas Pty Ltd. 4. Trading as Sumo Power Pty Ltd.

18.2 Natural Gas Retail Industry Group changes

Changes to the Natural Gas Retail Industry Group during the reporting period include four new retailers entering the gas market:

- GloBird Energy Pty Ltd
- TasGas Retail Pty Ltd
- SparQ Gas Pty Ltd
- Weston Energy Pty Ltd.

Agora Retail Ltd had its Gas Safety Case accepted in August 2018.

BHP Petroleum (Bass Strait) Pty Ltd (which holds a Varied Gas Retail Licence) has also notified ESV of its intention to submit a formal Gas Safety Case for retailing natural gas.

18.3 Focus and priorities during 2017-18

ESV focused on the 5-yearly Safety Case review submissions and new entrant Safety Case submissions during the reporting period.

ESV also reviewed the industry group's active retail licences against the list of natural gas retail licences published by the Essential Services Commission (ESC) to ensure the information is consistent.

A gas company's ESC natural gas retail licence is conditional on it having an accepted Gas Safety Case with ESV.

19. Natural Gas Retail – Monitoring, auditing and inspections

ESV's strategic audit planning process identifies its audit priorities and underpins the annual audit plan and any associated resource allocation. The 2017-18 compliance audits for this industry group focused on annual Safety Case self-compliance and accepted Safety Case (and associated procedures) auditing.

19.1 Compliance documentation, self-reporting and KPIs

Regulated entities are required to have a range of up-to-date compliance documents³⁷ that detail the entity's safety management framework. These documents provide the benchmark for ESV's ongoing compliance audits.

Compliance document types specific to this industry group include:

- Safety Cases
- Formal Delegations³⁸
- Emergency Response Plans.

19.1.1 Self-reporting and KPIs

In 2013, ESV introduced Safety Case compliance self-reporting for natural gas retailers. In accordance with legislation³⁹, natural gas retailers are required to demonstrate the implementation of a safety management system (SMSy) as well as the adequacy of that system's internal monitoring, auditing and review. The Safety Case compliance report generally demonstrates that the gas companies have undertaken key internal monitoring activities, and have reviewed their policies, procedures and practices in relation to their gas retail activities.

While all the regulated entities in this industry group provided a compliance report for the reporting period, ESV is still seeking increased engagement from natural gas retailers with respect to:

- their compliance with both their accepted Safety Case and AS/ISO 19600:2015
- the engagement of the organisation's governing body, including its risk and audit committee, board of directors, and senior management
- a clear compliance program and reporting process.

While the level of risk associated with natural gas retail facilities is generally lower than other facilities regulated by ESV (as per Activity Risk Scoring), the requirement to ensure the ongoing review and monitoring of safety remains unchanged. ESV will be directly addressing the senior management of regulated entities that continue to fail to provide self-compliance reports.

37 Legislation and standards require the revision of Safety Cases at least every five years to the satisfaction of ESV.

38 The person responsible for the operation of a facility as declared under the Gas Safety Act or as licensed under the Gas Industry Act.

39 Regulation 19 of the Gas Safety (Safety Case) Regulations 2008.

19.1.2 Incident statistics

Emergency response exercises

Natural Gas Retail Industry Group members are required to conduct at least two emergency response exercises in any (rolling) 12-month period.

Following the identification of certain deficiencies during the last three Gas Emergency Management Consultative Forum (GEMCF) emergency exercises, and mainly involving the communication protocols of industry participants during an emergency, ESV is pursuing the following assurances from natural gas retailers:

- The execution of at least two emergency response exercises per year. (The KPI reporting data shows that not all retailers were doing this⁴⁰.)
- The ability to demonstrate operational competencies through emergency response exercises and involvement in exercises conducted by the GEMCF.
- An understanding that the fundamental focus during a gas emergency is to ensure that the safety of people and the protection of property takes absolute priority over commercial interests.
- An understanding about the implementation of voluntary curtailment when AEMO is not issuing directions. (This issue came to light during an exercise to test a Level 3 Voluntary Curtailment scenario involving natural gas retailers and distribution businesses.)
- An understanding about gas load management and recovery (which has been a cause for uncertainty among natural gas retailers and distribution businesses).

Table 19.1 lists the regulated entities that did not conduct two emergency response exercises during the reporting period as per Safety Case requirements.

Table 19.1 – Regulated entities that did not conduct emergency response exercises

Natural Gas Retail
Click Energy Pty Ltd
CovaU Pty Ltd
Lumo Energy Australia Pty Ltd
M2 Energy Pty Ltd
Powershop Australia Pty Ltd
Red Energy Pty Limited
SparQ Gas Pty Ltd

19.1.3 Periodic compliance reporting

Agreements are in place with various regulated entities from a number of relevant industry groups for the submission of quarterly Key Performance Indicator (KPI) reports, which are expected to be submitted to ESV within 20 business days of the end of the previous quarter.

Table 19.2 lists the regulated entities that were late to submit KPI quarterly reports on more than one occasion during the reporting period.

40 Retailers are expected to conduct the exercises during the same financial year.

Table 19.2 – Periodic KPI quarterly report late submissions

Natural Gas Retail
Click Energy Pty Ltd
CovaU Pty Ltd ¹
GloBird Energy Pty Ltd ¹
Ipower 2 Pty Limited and Ipower Pty Limited
Lumo Energy Australia Pty Ltd ¹
M2 Energy Pty Ltd
Momentum Energy Pty Ltd
Powershop Australia Pty Ltd
Red Energy Pty Limited ¹
SparQ Gas Pty Ltd ¹
TasGas Retail Pty Ltd
Weston Energy Pty Ltd
Notes: 1. No KPI reports were received during the last reporting period.

19.1.4 Electronic audit

No electronic audits were conducted during the reporting period⁴¹.

⁴¹ Electronic audits are self-assessment questionnaires and treated the same way as a compliance audit.

20. Natural Gas Retail – Acceptances and approvals

20.1 Safety Case acceptance

Legislation requires the revision of Safety Cases at least every five years to the satisfaction of ESV. In most cases, new entrants and existing companies work closely with ESV to ensure that the content and quality of their submissions are appropriate for a particular facility, which significantly reduces the number of re-submissions required before acceptance is given.

Table 20.1 lists the Safety Cases due (or overdue) for submission to ESV as at 30 June 2018.

Table 20.1 – Safety Case revision and acceptance (Natural Gas Retail)

Regulated entity	Date last accepted	Next revision due	Next revision submitted	Overdue for acceptance ¹
M2 Energy Pty Ltd	26-Nov-2012	26-Nov-2017	Yes	Yes
Energy Australia Pty Ltd	19-Feb-2013	19-Feb-2018	Yes	Yes
ERM Power Retail Pty Limited	12-Mar-2014	12-Mar-2019	No	No
Momentum Energy Pty Ltd	17-Mar-2014	17-Mar-2019	No	No
Red Energy Pty Limited	18-Sep-2014	18-Sep-2019	No	No
Click Energy Pty Ltd	16-Jan-2015	16-Jan-2020	No	No
AGL Sales Pty Ltd	24-Mar-2015	24-Mar-2020	No	No
CovaU Pty Ltd	18-Jun-2015	18-Jun-2020	No	No
Esso Australia Pty Ltd	01-Mar-2016	01-Mar-2021	No	No
Lumo Energy Australia Pty Ltd	14-Jun-2016	14-Jun-2021	No	No
Powershop Australia Pty Ltd	13-Feb-2017	13-Feb-2022	No	No
SparQ Gas Pty Ltd	21-Jul-2017	21-Jul-2022	No	No
Ipower 2 Pty Limited and Ipower Pty Limited	15-Sep-2017	15-Sep-2022	No	No
Weston Energy Pty Ltd	20-Nov-2017	20-Nov-2022	No	No
GloBird Energy Pty Ltd	06-Dec-2017	06-Dec-2022	No	No
Alinta Energy Retail Sales Pty Ltd	19-Dec-2017	19-Dec-2022	No	No
Tas Gas Retail Pty Ltd	28-May-2018	28-May-2023	No	No
Origin Energy Retail Ltd (Mildura) & Origin Energy (Vic) Pty Ltd	17-Jul-2018	17-Jul-2023	No	No
Notes:				
1. Submitted documents may not have been accepted for a range of different reasons that include ESV not yet having reviewed the submission or deeming the submission unsatisfactory.				

20.1.1 Safety Case issues

Specific issues relating to submitted Safety Cases include:

- ensuring that comprehensive training is provided to customer service representatives about:
- determining whether a gas installation is standard or complex
- the different compliance obligations for standard and complex gas installations
- clearly identifying the persons responsible for the safe management of functions including gas load management, curtailment, and receiving notifications from AEMO during an emergency
- ensuring that staff understand their roles during an emergency (especially given some large retailers have experienced high staff turnover).

21. Natural Gas Retail – Education and partnerships

21.1 The annual gas emergency management exercise

The annual Gas Emergency Management Consultative Forum (GEMCF) exercise, Exercise Tamar 2018, was held on 17 April 2018. The exercise’s focus was on the gas curtailment process with the aim of exploring, discussing and understanding how the curtailment process works from all participants’ perspectives and how individual business processes work together to form the overall curtailment process.

The exercise format comprised eight presentations from members present with round table discussion and testing of various curtailment process scenarios.

See Section 15.1 for more information about Exercise Tamar’s outcomes.

21.2 Embedded networks

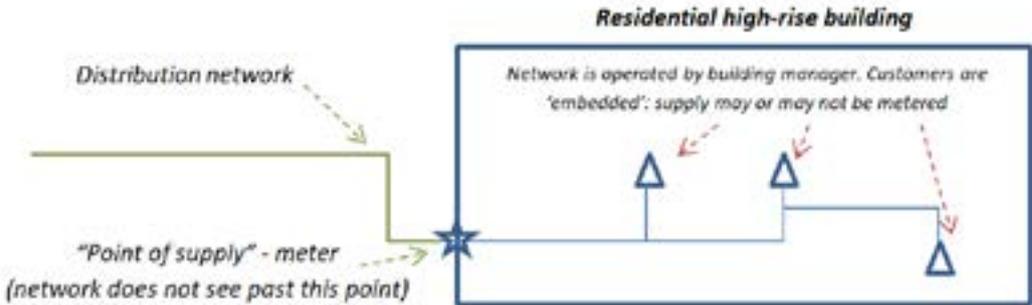
With the prospect of embedded network natural gas retailers entering the Victorian market, ESV has issued a memorandum to better manage embedded gas network operators (EGNOs) under the *Gas Safety Act 1997* (GSA).

ESV defines an embedded gas network as one where:

- distributors and retailers supply customers at premises (for example, building managers or owner corporations take on the responsibility for conveying gas and then on-selling it to other entities on the property, such as the tenants)
- the only customer seen by the distribution and retail companies is (for example) the building manager or owners’ corporation, even though they are not the end-consumer of the gas. In this example, this is an embedded gas network and the building manager or owners’ corporation is the EGNO.

Figure 21.1 shows an example of an embedded gas network. The network’s point of supply ends at the meter and another entity then supplies gas to end consumers⁴².

Figure 21.1 – Embedded network supply



The holder of a licence issued by the Essential Services Commission (ESC) authorising the provision of services by means of a distribution pipeline, or to sell gas, is defined as a gas company for the purposes of the *Gas Safety Act 1997* (GSA).

Any EGNO with a licence issued by the ESC must submit a Safety Case to ESV for each of its facilities.

There were no licenced embedded networks at the time of publication.

⁴² ‘Supplies’ is not defined under either the GIA or GSA. In this context, supply can have two meanings: either the act of conveying the gas through pipelines (which is ‘distribution’ under the GIA) or the act of selling the gas (which is ‘sale’ under the GIA).

21.3 Ongoing initiatives

The Gas Emergency Management Consultative Forum

As in previous years, ESV continues to encourage retailers to participate in the GEMCF.

The GEMCF is an industry forum for gas retailers, other gas companies registered with AEMO (under the National Gas Rules), ESV, DELWP, and any other natural gas company required to have a Safety Case under the *Gas Safety Act 1997*.

Providing retailers with the opportunity to participate in system-wide emergency exercises and to test and improve their own emergency preparedness responses and recovery, the GEMCF:

- enables emergency protocols to be agreed with the Natural Gas Retail Industry Group and AEMO, which can be tested with annual emergency exercises irrespective of consumer contractual arrangements
- tests customer relationships and the management of system load in the case of an emergency
- enables industry group members to understand how they can assist in an emergency situation impacting other retailers
- facilitates a holistic, system-wide emergency response requiring resource sharing protocols between organisations, states and emergency services
- tests effective communications to identify lessons to be learned and actions/recommendations to be implemented.

21.4 New initiatives

New initiatives for the reporting period involved:

- The Gas Safety (Safety Case) Regulations review
- The retailer emergency functions review
- Information Sheet No.33
- The KPI review
- Electronic audits.

The Gas Safety (Safety Case) Regulations review

The new Safety Case Regulations were published in October 2018, and ESV consulted with industry participants affected by the new legislation throughout its review.

The retailer emergency functions review

ESV intends to review retailer emergency obligations under the regulations and ensure retailers conduct at least two satisfactory emergency response exercises during a financial year, with at least a four month gap between exercises to ensure that responsible persons understand their roles during an emergency.

In addition, natural gas retailers will be audited on their emergency preparedness and their new-to-industry connection processes (where relevant).

Information Sheet No.33

ESV recognises the challenges for natural gas retailers in understanding the different obligations for gas installation compliance. As a result, ESV has offered to provide training as required on ESV's Information Sheet No. 33, "Gas Installation Notification" to any gas company that takes on new-to-industry gas connections.

The KPI review

ESV will be undertaking a review of KPI reports to ensure the currency of the information collected. Stakeholders will be informed accordingly and in advance of any update to the KPI reporting template.

Electronic audits

Electronic audits, using applications like Survey Monkey, are to be developed and e-mailed to all gas retailers in May and June of each year with requests for information about:

- the company's current ownership, trading name, organizational structure and contact details
- emergency response exercises conducted or to be conducted during the reporting period
- quarterly KPI reports
- other relevant information as required.

22. Natural Gas Retail – Compliance and enforcement

ESV's Compliance and Enforcement Policy and Compliance Strategy are designed to ensure that community safety and environmental outcomes are achieved as part of ESV's objectives and functions as specified by the *Energy Safe Victoria Act 2005*, the *Electricity Safety Act 1998*, the *Gas Safety Act 1997*, and the *Pipelines Act 2005*.

To date, ESV's activities have been in cooperation with regulated entities that in most cases responded promptly and effectively, and no enforcement action has been required.

23. Natural Gas Retail – Focus and priorities for 2018-19

ESV's focus and priorities for 2018-19 will include the following:

- A focus on the training and competence of personnel responsible for a gas company's Gas Safety Case.
- Reviewing the quarterly KPI reports, gas company emergency preparedness, and gas company obligations under the new Gas Safety (Safety Case) Regulations 2018.
- Maintaining up-to-date information on gas company businesses and organisational changes.

Appendix



Terms and abbreviations

Terms and Abbreviations	Meaning
AEMO	Australian Energy Market Operator Limited (ACN 072 010 327)
AER	Australian Energy Regulator
ALARP	As low as reasonably practicable
AS	Australian Standard/s
Cathodic protection	A technique used to control the corrosion of a metal surface by making it the cathode of an electrochemical cell
Cathodic protection system	An electrical means of mitigating corrosion on buried and submerged metallic structures
CNG	Compressed natural gas
Conditions of Works	A specific requirement issued by a pipeline licensee to an external party prior to its proposed works in the vicinity of a pipeline to ensure the safe and reasonable protection of the licensee's asset. Conditions of Works detail the conditions under which work may be undertaken and are provided by licensees to third parties in response to a Dial Before You Dig enquiry.
CP	Cathodic protection
DCVG	Direct Current Voltage Gradient
DELWP	Department of Environment, Land, Water and Planning
EIRC	Energy Industry Response Committee
EMV	Emergency Management Victoria
ESC	Essential Services Commission
GEMCF	Gas Emergency Management Consultative Forum
GEMG	Gas Emergency Management Group
LNG	Liquefied natural gas
Location classes (T1 and T2)	Urban location classes, T1 involves suburban areas and T2 involves multi-storey areas or large commercial centres
LP Gas	Liquefied petroleum gas
NDT	non-destructive testing
SMSy	Safety management system

