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Submission by the Australian Pipeline Industry Association to the NSW Planning System Review

Introduction

The Australian Pipeline Industry Association (APIA) is the peak industry body representing Australia's gas transmission industry, covering the interests of the owners and operators, constructors and designers of gas transmission infrastructure and the manufacturing and service providers supporting them.

APIA would like to bring to the joint Chairs' attention the treatment of gas transmission infrastructure in the planning system in NSW. Given APIA's focus, our issues relate specifically to gas transmission infrastructure; however, the issues are relevant to the treatment of energy supply infrastructure more generally.

As detailed below, APIA believes it is in the interest of public safety for the operators of gas transmission pipelines to be formally engaged in the planning process for developments that are proposed to be located in the vicinity of gas transmission pipelines in NSW.

Petroleum and Gas Transmission Infrastructure in NSW

In New South Wales there are 35 licensed petroleum pipelines, 22 of which are high pressure natural gas pipelines. They extend over almost 5,000 kilometres and supply the 1.1 million gas connections in NSW with essential gas supplies. These supplies are currently around 128PJ per annum, a significant portion of end use energy consumption in the state, and the total is predicted to grow substantially in the future as gas plays an increasingly role in Australia's energy mix. Other licensed petroleum pipelines carry essential products such as ethane, oil and refined petroleum throughout the state.

The primary purpose of these high-pressure, steel transmission pipelines is to transport natural gas and other fluids from production regions to the demand centres of cities and industry. Once at these demand centres, gas is delivered to gas customers via distribution networks operating at much lower pressure.

Pipeline Design and Risk Assessment

High-pressure, steel pipelines carrying petroleum and gas products in Australia are designed to the relevant Australian standard, AS2885. AS2885 is recognised as the benchmark pipeline standard internationally and is a comprehensive, risk based standard.

The AS 2885 risk assessment process commences with the development of a pipeline project and continues until that pipeline is abandoned. It is a “cradle to grave” process. The process is rigorous and involves identifying all possible threats to the pipeline, metre by metre along its entire length, and either eliminating these completely in the design or managing the risks in the operations phase, such that the risk are as low as reasonably practical (ALARP). This initial analysis results in what is commonly referred to as a pipeline risk profile that reflects the identified threats to the pipeline and the mitigation measures applied at a singular point in time.

A pipeline must be designed, and its risk assessment maintained, with regard to the land use classification of the area encompassed by its measurement length. It is changes to land use within this area that impact a pipeline’s risk management process.

The measurement length of a pipeline is defined in AS2885 as the radius of the 4.7 kW/m² radiation contour for a full bore rupture. kW/m² is a measurement of heat intensity. An exposure of 4.7kW/m² can cause serious injury after 30 seconds exposure. In essence, the measurement length can be considered the distance from a pipeline at which there is a real chance of serious injury or death in the event of a catastrophic failure of the pipeline. The 4.7 kW/m² radiation contour is used widely in risk assessment methodology, including in the NSW Government’s Planning Guidelines for Hazardous Development, updated by the Department of Planning and Infrastructure in 2011.

The measurement length of a pipeline is unique, depending on multiple variables such as operating pressure and throughput. The measurement length for a pipeline is approved by the pipeline regulator. For a major high pressure gas pipeline, the measurement length will be hundreds of metres. Smaller high pressure pipelines have a measurement length expressed in the tens of metres.

APIA would like to stress that, while the consequences of a full bore rupture can be catastrophic, no such incident has resulted in the loss of life in Australia. Full bore ruptures of gas transmission pipelines are very rare events, to the extent that they are international media incidents when they occur. The Australian pipeline industry operates to the highest standards and our expertise is world renowned. The diligent operation and maintenance of Australia’s pipelines has results in an excellent safety culture and record, and substantial resources are devoted to maintaining and improving safe operating standards.

The risk assessment process means that a pipeline is designed in a manner that mitigates threats to the integrity of a pipeline and limits consequences to the environment around it, based on the foreseeable use of the adjacent land. In a macro sense, this involves establishing the existing and future land use or “zoning” as provided for by Local, State and Federal Government planning authorities and classifying the land use into one of four location classes (R1 – broad rural, R2 – semi rural, T1 – suburban, T2 – high rise).

AS2885 mandates that the pipeline must be protected from external interference. It requires a minimum number of physical and procedural protection measures to be adopted to achieve this in each location class. As the land use increases in population density across each location class, further measures are required.

Procedural measures include marking, patrolling the right of way, landowner, occupier and public liaison and awareness and participation in one-call service.

Physical measures include separation by burial, barrier or exclusion and resistance to penetration by pipe wall thickness, use of concrete slabs and other physical protective means.

Throughout the life of the pipeline the risk profile must be reviewed whenever a change occurs that may alter the risk profile and in the absence of such change, at specified intervals of time.

It is important to recognise that the risk profile established at the time of commissioning reflects a singular point in time. During operation, newly identified threats to the pipeline may occur as a result of changes in the use of the adjacent environment and from other events. The risk profile is both time and change dependent, hence the need for constant review.

Changing environments

Pipelines are a fundamental component in the gas supply chain and are necessary in order to bring gas to cities. They are long lived assets, having operating timeframes in excess of 50 years. However, as population growth puts pressures on the urban fringe of a city, there is, in many cases, increasing pressure on environments that were once categorised as rural to become urban environments over the life of a pipeline. For every city and town that is connected to the gas grid, there is the potential for this urban expansion to require consultation with gas transmission pipeline companies.

Clearly, urban environments present increased potential for interference to a pipeline by non-pipeline activities. This can be particularly true during the transition from a rural to an urban environment, with the increased construction activity implicit in such a transformation. As more people move to live within the vicinity of a pipeline easement, the consequences of interference and incidents also increase.

Expansion of urban centres is accepted by the pipeline industry as a natural consequence of growth and also as a desirable development. However, such expansion near a pipeline easement may affect the risk profile of the design of that section of pipeline. In such cases, it is necessary to assess the risks and, where necessary, to undertake measures to either reduce the risk to the pipeline or reduce the consequence of a failure. These measures can be costly and, therefore, require substantial forward planning. Clearly, it is in the interests of the development proponents, planning agencies and other stakeholders to communicate with the pipeline operator as early as possible in the planning process.

The earlier that notice of planning proposals is provided, the better the information available to address public safety and the better equipped the planners will be to design efficient and effective outcomes, including ensuring safety near transmission pipelines both during development and after development.

Treatment in NSW Planning System

Section 55 of State Environmental Planning Policy (Infrastructure) 2007 states:

55 Development adjacent to corridor

(1) Before determining an application (or any application for modification of a consent) for development adjacent to a gas pipeline corridor, the consent authority must:

(a) be satisfied that the potential safety risks or risks to the integrity of the pipeline that are associated with the development or modification to which the application relates have been identified, and

(b) take those risks into consideration.

(2) In this clause, "gas pipeline corridor" means any land:

(a) within the licence area of a gas pipeline licensed under the Pipelines Act 1967, or

- (b) within 20m (measured radially) of the centreline of any of the following gas pipelines:
- (i) Central West Pipeline System and Central Ranges Pipeline System,
 - (ii) Eastern Gas Pipeline,
 - (iii) Moomba to Sydney Pipeline System,
 - (iv) Wilton to Newcastle Pipeline,
 - (v) Wilton to Wollongong Pipeline,
 - (vi) Culcairn to Victoria Interconnect Pipeline,
 - (vii) Hoskinstown to Australian Capital Territory Pipeline

APIA has three main issues with section 55:

1. While risks must be identified, there is no stated requirement for consultation with the pipeline operator or conduct a full risk assessment. This treatment differs from the owners of electricity infrastructure, who are entitled to mandatory consultation under section 44 of the SEPP (Infrastructure) 2007.
2. The provisions of the section are focussed on the easement and the immediate vicinity of a gas transmission pipeline. The consequences of a failure, which must be considered in any risk assessment, can extend beyond the easement.
3. The inclusion of a list of pipelines does not appropriately reflect the full extent of gas and petroleum pipeline infrastructure in NSW, and is not a dynamic approach. This issue can be readily addressed by referencing all pipelines licensed under the *Pipelines Act 1967*.

Solution

APIA proposes that a notification zone around pipelines be implemented to ensure that high pressure pipelines are given due consideration in planning decisions.

The notification zone will establish an area around a pipeline that requires the pipeline company to be informed of planning and development proposals that have the potential to change a land use classification. In effect, it would give a pipeline operator a similar standing to that of a referral agency, with an opportunity to comment on proposals, advise of potential issues and enter a dialogue with the proponent if necessary.

The notification zone concept should be implemented across the whole planning regime, including high level state planning, regional planning managed by councils and development applications within planning zones that may impact locally on the pipeline safety profile.

Given the relatively small number of licensed pipelines in NSW, it is appropriate that a notification zone specific to each pipeline, based on the measurement length, be identified.

Where a proposal is consistent with the existing land use, the pipeline design will have foreseen the possibility of such proposals and there should be no change to the risk assessment for the pipeline. When a proposal requires a change to the existing zoning provisions, there is the potential to introduce new risks and consequences to a pipeline, and it is appropriate for the pipeline operator and proposal proponent to commence a dialogue as soon as possible to identify appropriate remedies for the situation.

It is not proposed that land around a pipeline be sterilised, in fact the land near a pipeline easement SHOULD NOT be sterilised. Also, there is no requirement that pipeline operators be given veto powers over planning processes nor that development be limited in any way. It is important to note that risk mitigation measures can address all issues presented by new development, pipelines can be and are designed to operate in heavily urbanised environments. The purpose of this proposal is to

ensure that a pipeline operator is engaged in the processes that may result in changes to a pipeline's risk profile as early as possible, to ensure the most satisfactory and efficient outcomes are reached.

Summary

- Gas and petroleum transmission pipelines are a vital part of energy infrastructure in NSW.
- Gas and petroleum transmission pipelines are safe.
- Transmission pipelines have operating lives in excess of 50 years.
- Transmission pipelines are designed with consideration of the risks and consequences presented by the environment around them at distances of hundreds of metres.
- As these environments change over time, a pipeline is likely to require new protection measures to maintain the risk profile as low as reasonably practical.
- A main area of change is at the urban/rural interface.
- Current planning provisions recognise the need to identify risk in the immediate vicinity of a pipeline, but do not:
 - mandate consultation with pipeline operators; or
 - recognise the full area that must be considered in pipeline risk assessments.
- The earlier a pipeline operator can be involved in the development process, the more options are available to development proponents and pipeline operators to address issues.
- It is appropriate that pipelines are formally advised of planning processes that may impact a pipelines risk assessment.
- APIA proposes a notification zone be implemented around each transmission pipeline to achieve this.
- Other forms of infrastructure in NSW, including electricity infrastructure and hazardous facilities, enjoy the types of engagement transmission pipelines are proposing.

APIA is very happy to work with the joint Chairs and the review team to address this issue and welcomes the opportunity to provide more information. Please contact APIA's Policy Adviser, Steve Davies on (02) 6273 0577 or at sdavies@apia.asn.au .

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