29 November 2019

Via email: dpti.planningreformsubmissions@sa.gov.au

Consultation on Draft Planning and Design Code – Epic Energy South Australia Pty Ltd

Epic Energy South Australia Pty Ltd (Epic Energy) is the owner and operator of the Moomba to Adelaide Pipeline System (MAPS) and the South East Pipeline System located near Mount Gambier. The MAPS is critical infrastructure, transporting over 50% of the State’s gas supply. Epic Energy and its predecessor companies has been in operation for 50 years, and we pride ourselves on a long history of safe and reliable gas pipeline operations.

We have reviewed the proposed ‘Strategic Infrastructure Gas Pipelines Overlay’ in the Draft Planning and Design Code and have significant concern that it is inadequate to manage the risk to both public safety and security of energy supply, and if implemented would result in a net worse position than current processes.

This letter outlines our objection to the current draft and proposes a scheme where public safety will be better safeguarded and a consultation process that will be more efficient for all parties involved.

Epic Energy made a submission to the State Planning Commission in November 2017 on the need to improve planning processes for land in the vicinity of high pressure natural gas pipelines. We proposed amendments to the planning and design code under the Planning, Development and Infrastructure Act 2016, and in November 2018 attended a meeting with representatives from the Department of Planning, Transport and Infrastructure (DPTI) and other pipeline industry representatives to discuss appropriate overlays for high pressure natural gas pipelines. It was our understanding at the conclusion of that meeting that there would be further engagement on this matter.
To date such engagement has not occurred and the overlays released in the Draft Planning and Design Code will afford less consideration to pipeline risk than existing processes, which have already been recognised by local councils and pipeline operators as being insufficient.

We note that we have openly engaged with SEAGas (the owner/operator of South Australia's other main high pressure gas transmission pipeline) and the Department for Energy and Mining (the relevant licensing authority for South Australian high pressure gas transmission pipelines), who share our concerns that the Draft Planning and Design Code will not satisfactorily protect public safety and security of energy supply. We have collectively given considerable consideration to the objectives of the Draft Planning and Design Code and would like to propose more specifically defined overlays that recognise the requirements for pipeline safety under the South Australian Petroleum and Geothermal Energy Act 2000 (PGE Act). Our proposal has a reduced footprint in areas where pipelines already have sufficient design safeguards to coexist with densely populated areas. This will substantially reduce the amount of consultation required with the pipeline industry for land divisions and developments. These overlays would also ensure that developments that would interfere with safe pipeline operations or impact compliance with pipeline licence requirements are referred to the DEM as the relevant licensing authority. The proposed overlays are defined in Attachment 1, Table 1 and the basis for the proposed overlays is provided below.

Natural gas transmission pipelines are critical infrastructure in South Australia, as they transport the fuel that provides 50% of the State's electricity generation and are also used to transport energy to industrial and residential customers.

Natural gas transmission pipelines in South Australia are regulated under the PGE Act that requires pipelines to be operated in accordance with the Australian Standard 2885 Pipelines; Gas and Liquid Petroleum (AS 2885), which is in line with an agreement of the Council of Australian Governments to adopt AS 2885 to achieve uniform national pipeline standards.

The primary purpose of AS 2885 is to ensure the safety of general public and pipeline operating personnel, security of gas supply and the protection of the environment. This purpose is aligned with the principles that planners are required to follow for Statutory Instruments that are outlined in State Planning Policy 10: Mineral and Energy Resources, as follows:

**Regional Plans** should identify mineral and energy resource areas, associated infrastructure, including connections via strategic access routes, transport corridors and pipelines. Strategies to minimise the impacts of encroachments by incompatible land uses should be identified to manage risk to public safety, the environment and security of energy supply.

**The Planning and Design Code** should identify key mineral and energy resource areas, including resource areas, processing areas, separation areas, transport routes and pipelines used for energy transportation. Policies should prioritise the protection of land for extractive industry and ensure that potentially incompatible land use applications are appropriately assessed.

In order to achieve the primary purpose of AS 2885 when designing a pipeline to compatible with the surrounding land use, the Planning and Design Code must provide a planning framework that aligns with the requirements of the PGE Act and AS 2885. AS 2885 has
specific safety provisions that apply to pipeline design in Residential, High Density, Industrial, Heavy Industrial and Sensitive locations and locations where crowds gather. These provisions include:

1. **A pipeline must be designed such that rupture is not a credible failure mode.**

   (This provision is in place because a pipeline rupture is considered an uncontrolled catastrophic event that could result in multiple fatalities if it was to occur in a populated area. Where there is an existing pipeline designed for rural or open space land use that does not meet this requirement and the land use changes, there is a requirement to carry out a detailed Safety Management Study and demonstrate that the risk of pipeline rupture has been reduced to As Low as Reasonably Practicable (ALARP). The demonstration of ALARP can only be satisfied through early consultation between planners, developers and the pipeline operator.)

2. **A pipeline must be designed such that the maximum energy release rate from the hole size caused by the largest credible threat in a residential or industrial area does not exceed 10 GJ/sec.**

   (This provision is in place to further limit the allowable energy release rate due to pipeline failure in a populated area. 10 GJ/sec corresponds to an energy release which if ignited would have a 4.7kW/m² radiation contour of approximately 200m. This means that persons within 200m of the pipeline failure would need to move out of the area within 30 seconds to avoid injury of at least 2nd degree burns. 10 GJ/sec corresponds to an energy release which if ignited would have a 12.6kW/m² radiation contour of approximately 125m. This means that persons within 125m of the pipeline failure would need to move out of the area within 30 seconds to avoid third degree burns or fatality.

   Where there is an existing pipeline designed for rural land use that has a credible threat that could result in a failure that exceeds the 10 GJ/sec energy release rate and the land use changes to residential or industrial, there is a requirement to carry out a detailed Safety Management Study and demonstrate that the risk of pipeline failure has been reduced to ALARP. The demonstration of ALARP can only be satisfied through early consultation between planners, developers and the pipeline operator.)

3. **A pipeline must be designed such that the maximum energy release rate from the hole size caused by the largest credible threat in a High Density or Sensitive area does not exceed 1 GJ/sec.**

   (This provision is in place to further limit the allowable energy release rate due to pipeline failure in areas populated by persons that may not be able to promptly vacate an area. It applies to schools, hospitals, aged care facilities, prisons and land that is developed for high density community use where multi-storey development is predominate, or major retail, business or sporting complexes. 1 GJ/sec corresponds to an energy release which if ignited would have a 4.7kW/m² radiation contour of approximately 70m. 1 GJ/sec
corresponds to an energy release which if ignited would have a 12.6kW/m\(^2\) radiation contour of approximately 40m.

Where there is an existing pipeline designed for rural land use that that has a credible threat that could result in a failure that exceeds the 1 GJ/sec energy release rate and the land use changes to incorporate a high density or sensitive development, there is a requirement to carry out a detailed safety management study and demonstrate that the risk of pipeline failure has been reduced to ALARP. The demonstration of ALARP can only be satisfied through early consultation between planners, developers and the pipeline operator. In this case, experience has shown that for high pressure transmission pipelines, designed for rural or open space land use, the most practical resolution is to relocate sensitive and high density developments to a distance from the pipeline where they will not be impacted by a pipeline failure.)

4. A pipeline’s Safety Management Study must be reviewed and updated where a change in land use introduces a new threat to a pipeline or a development contains features that may cause a pipeline failure event to escalate in terms of fire or the potential release of toxic or flammable material.

(This provision exists to ensure that developments in the vicinity of a high pressure transmission pipeline are suitable to co-exist with a pipeline and do not create the potential for a material increase in the risk to the general public, operating personnel, security of gas supply or the environment).

5. A maximum spacing of 15 km between mainline valves to allow isolation of the pipeline and vents to allow evacuation of the fluid from a pipeline for maintenance and repairs after a loss of containment is recommended in residential and high-density areas.

(This provision is in for the benefit of public safety and enables the rate of gas release and the area impacted by the ignition of a gas escape to be rapidly reduced after a pipeline failure. While venting is a very infrequent event it results in extremely high noise levels and will exceed the requirements of both the Environmental Protection Act for occasional noise and the requirements of the Work Health and Safety Act for acceptable noise levels. Pipelines are designed with vents located in wide open spaces and if development is allowed to encroach on these vents, they will be unable to be operated, which will have a direct impact on public safety.)

To enable the provisions of AS 2885 to be considered under the existing planning regime, pipeline operators have been notified of all land divisions within the pipeline measurement length\(^1\), which represents the largest area around a pipeline that can be affected by the

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\(^1\) Measurement Length is the radius of the 4.7kW/m\(^2\) radiation contour for an ignited rupture, calculated in accordance with AS/NZS 2885.6, applied at all locations along a pipeline.
AS 2885 provisions. The DEM is a referral agency for these developments and seeks to ensure that the provisions of AS 2885, outlined above, have been addressed.

To limit planning considerations to what is in the current overlay will put both public safety and security of natural gas supply at significant risk, as it is often impossible to make the necessary engineering changes to the pipeline once a new built environment has been constructed near the pipeline.

We believe that the most efficient and effective way of ensuring pipeline risk is appropriately managed is to adopt the overlays in Attachment 1, Table 1. We have provided Attachment 2, Figure 1 to demonstrate the size of the overlay proposed in Table 1 compared to the ‘Measurement length’ overlay proposed in the ‘Strategic Infrastructure Gas Pipelines Overlay’ in the Draft Planning and Design Code for the MAPS. This demonstrates the potential reduction in overlay size achievable through implementation of our preferred approach.

If this approach is unacceptable to DPTI, then an alternate approach would be to have a single overlay of a size equal to the pipeline measurement length. All land divisions and development applications within this overlay would need to be referred to DEM, so an assessment could be made of the impact of the land division or development against the provisions for safety and security of supply in AS 2885. This would provide a process equivalent to the existing planning regime. An appropriate overlay to meet this purpose is defined in Attachment 1, Table 2.

Thank you for the opportunity to comment on the Draft Planning and Design Code. We trust that this submission has provided sufficient information to inform amendment of the Draft Planning and Design Code to adequately address public safety and security of gas and energy supply and would welcome the opportunity to engage further on this matter.

Please contact our Principal Pipeline Engineer, James Czornohalan on [redacted] or at [redacted] should you require further information.

Yours Sincerely

Tom Forde
General Manager Operations

Attachment 1: DPTI proposed overlays tables
Attachment 2: Measurement length overlay
Attachment 1 – Proposed Overlay Tables
Figure 1: Comparison between the 'Measurement length' overlay in the 'Strategic Infrastructure Gas Pipelines Overlay' in the Draft Planning and Design Code and the Overlays proposed in Table 1 (Wasleys area).