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"PIPELINE ENCROACHMENT - WHO SHOULD PAY"

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“Pipeline Encroachment - Who Should Pay?”

As a national facilitator of SMS’s for developers, pipeline licensee’s and government planners I see multiple expectations, disagreements and outcomes. Whilst AS2885 expects the Pipeline Licensees to be responsible for managing and mitigating their risks, there is a clear expectation among the licensees that “the agent of change” should be responsible for the costs of the change.

Not surprisingly, many Developers do not feel the same way, much to the frustration of all parties, the developer, pipeline licensees and the planning authorities.

What I’d like to do with this presentation is explore the issues facing the Pipeline Industry, Developers and the Government Planners and identify areas that are working well and where there are opportunities for improvement, with the ultimate goal of the earliest possible engagement between developers/planners and the licensees and thus reducing disputes and litigation

AS2885.1 identifies that when designing a new pipeline, the designer needs to consult with the land planning agencies and councils to identify possible future land use to define the range of location classes necessary and design the pipeline accordingly to accommodate for potential future residential or industrial growth. Of course, once the pipeline is built nothing should change and we should all live and work happily ever after!

Our pipelines more often than not have 40-to-80-year design life and as we know, despite the best efforts of Planners to project their needs into the future, plans grow and change, and the industry has done a great job of recognising that and specifically developing AS2885 Part 6 to help the licensee’s manage change and risk around their pipeline.

Over the past 10-20 years the encroachment of developments around our pipelines has changed significantly.

In the early days pipeliners would often find out about the developments when the Developers were wanting to get on site and start digging only to find out about the pipeline and that they’ll have to pay significant money to protect it, sometimes leading to court and significant time and cost to both sides as the pipeliners endeavoured to explain why the developer needs to pay.

DBYG was established in the late 1990’s which has become fundamental procedural mitigation

Current Planning Notifications

Our Standard requires pipeline designers to engage with planners and councils when designing a pipeline and in particular the pipeline route and the known current and projected land use in the area. Our Standard identifies a procedural control to include “Planning Notification Zones” (AS2885.1.5.4.6(b)(ii)) but how do we as designers help inform the Planning Tools of Government Authorities?

Issues remain in the engagement process: -

Developers and planners don't understand the ML concept and consequences unless they have specifically been through the SMS previously and repeatedly. Currently around 90% of the land use change SMS's I do will be with a developer that has not been through the SMS process to this day. Even if the developer is as big as Lendlease the individual design teams are usually new to the process.

Each planning authority or council will have a different referral envelope in their town planning guidelines be it 50m, 100m, the ML, some QRA data or some other random distance making it very difficult to establish consistency.

Do the pipeline licensees understand how the planning process works enough and how they can influence the process to ensure their pipeline risks are fully appreciated and properly controlled in the planning approvals phase of development? Licensees are very good at controlling the physical activities around their pipeline when they know it's happening but my sense of it is that whilst there appears to be good early engagement, particularly in Victoria, the process from there is very difficult to follow until a developer hopefully undertakes a DBYD!

South Australia

CASE STUDY 1: -

Back in 2009 a developer in South Australia decided they wanted to develop a piece of land in Gawler East north of Adelaide and so lobbied the state government to rezone the land for residential use. The area they wanted to develop happened to have a major gas transmission pipeline supplying 50% of the State's gas running through it. During the pipeline's original design phase, some 8 years earlier, the Gawler East area was not earmarked for any future residential growth and as such the pipeline was designed without consideration for future residential development. Without any due consideration to the infrastructure in the area or consultation with the pipeline operator, the state government planning authority approved the rezoning to residential. The area targeted by the developer not only had the gas pipeline running through it but also had a key Main Line Valve and associated pipeline vent, a key safety feature of the pipeline design, in the middle of the development which the developer had proposed to locate in the middle of a new public park with properties within 45m. Since 2009 the pipeline operator has been trying to find a way to either modify the vent to be able to use it in place or relocate the vent. The time and effort in liaison with government and the developer including court proceedings along with engineering design investigations would have been significant and it was not until 2021, 12 years after the land was rezoned without consultation, that a confidential compromise settlement was reached between the parties.

The key message here is that government planning authorities really do need a proper appreciation of pipelines and their infrastructure so that decisions don't get made that have a direct impact on pipeline licensee's time and cost and most importantly pipeline and public risk, without due engagement with the pipeline licensee prior to any major decisions being taken. Furthermore, ongoing efforts to inform planning authorities and in particular new planners within government should be a key focus for the pipeline licensees and the industry.

Given the passage of time in this case study, there has been some excellent progress in SA with the Dept of Energy and Mining (under the watch of Michael Malavazos) and the pipeline operator assisting the State Planning Commission to establish a new "Planning and Design Code" released in March 2021 which identifies when pipeline infrastructure referrals are required for various new developments allowing planning authorities to identify pipeline infrastructure and its owner in the

area and to be able to make more informed referrals when considering new developments. Wide engagement by all stakeholders and industry was received during the consultation process with pipeline operators being active contributors.

Along with the Planning and Design Code an "SA Property & Planning Atlas" was established where anyone can identify pipeline infrastructure and the measurement length associated with it.

West Australia
CASE STUDY2: -

A developer in WA sort to build a rural residential estate in North Dandalup adjacent to the DBNGP south of Perth in an area where the DBNGP was not originally designed for residential land use (like it is in the Perth area). The developer had endeavoured to follow all directions from the WA Planning Commission with particular attention to Planning Bulletin 87. This Bulletin provided "Setback Distances" from the DBNGP and other WA Pipelines for developments of 50-200m depending on where the development was. It also required a Pipeline Risk Management Plan (PRMP)to be developed. The PB also required the Developer to refer to AS2885 and engage with the pipeline licensee (DBP on this occasion).

I was asked by the WAPC to come in and review the status of the process and documentation several years into the project when the developer and the pipeline licensee couldn't come to agreement.

My review found that: -

- The Developer had endeavoured to do the right thing in following the PB87 and reviewing AS2885
- The Developer had set back their building envelops consistent with PB87 (~100m)
- The Developer had inspected AS2885 Part 6. 2.3(b)(ii) for R2 Location Classes which says R2 applies to allotments of 1-5Ha and so they had prepared 200 lots at 1 Ha sizes thus "complying" with AS2885 or so they thought.
- They had engaged a consultant to run an SMS and prepare a PRMP, unfortunately it was not well conceived with the focus on construction risk only, with no regard for potential excavator risk and no consideration of the remaining life of the pipeline or the risks to the future population.
- In reviewing the consequences to failure from the DBNGP "Main Line" in particular (which has a ML of 466m) it was clear that the societal impact of a rupture was the "dominant consideration" as per AS2885 Part 6 2.3(d).
- As such the development needed to be considered a T1 Location Class and having led a new SMS Workshop both the Developer and the DBP agreed that the risks to the DBNGP main line required additional physical protection.

The SMS found that for the known/credible threats, concrete slabbing would be an effective protection consistent with other similar mitigations in other parts of Australia, the LOPA assessment found that the likelihood of failure would be within the Hypothetical range. The SMS did not rule out pipeline replacement as an effective mitigation and whilst it could be considered the more costly option, DBP found that only pipeline replacement could be considered ALARP for their pipeline.

Unfortunately, the developer couldn't agree with the DBNGP on the type of protection leading to further arguments in the WA State Administrative Tribunal which eventually found in favour of the DBP.

Further negotiation between the parties eventually lead to the developer agreeing to fund the replacement of almost 6km of DBNGP Main Line pipe. After almost 8 years of argument and negotiation the section of pipeline will be replaced at the end of the year and the developments 200+ allotments will be able to proceed.

The key lesson from this case study is again the planning tool leading to development expectations not consistent with licensed pipeline requirements under AS2885. The Planning Bulletin 87 is in the process of being replaced with a new "Development Control Policy 4.3 Planning for High Pressure Gas Pipelines" which has removed the reference to Set Back distances. Sadly, this new document is still in "Draft" and has been since 2018 so the planning expectations in WA around pipelines is still not clear!

What is clear is: -

- that the WA Planning Commission is still having some difficulty in providing firm policy guidance that balances future land development needs in and around high-pressure gas pipelines and the need to continued safe operations; and
- that the WA Planning Commission will not under any circumstances agree to any development near a WA pipeline without the express approval of the pipeliner with societal risk being the dominant consideration

New South Wales

NSW Planning Minister provides guidance through a "Circular" to all local councils, this circular identifies a standard set back/notification distance from a licensed pipeline where a development may need to be referred to the pipeline licensee for their review and approval or acceptance.

CASE STUDY 3: -

I was engaged by a major developer earlier this year to review a QRA Report on the Greater McArthur Growth Area (GMGA) prepared by a third-party consulting firm on behalf of the then NSW Department of Planning, Industry and Environment (DPIE). The GMGA happens to sit over and around three major transmission pipelines (Jemena's EGP, JGN and APA's MSEP). The QRA Report focused on the perceived risks to third parties from the pipelines and took a traditional QRA approach to risk consistent with the NSW HIPAP Guidelines for major hazard facilities. The QRA Report identified that the planning direction from DPIE should be to "exclude all residential development within 125m of the pipelines and all sensitive uses within 200m of the pipelines" thus sterilising large areas of land in the GMGA from development.

My report identified the following: -

- that HIPAP requirements are not appropriate to apply to linear, high-risk assets like pipelines
- that the QRA method of risk assessment is highly problematic when applied to pipeline risk in Australia (as has been identified in AS2885) and
- that AS2885 has a proven methodology for assessing and mitigating risks and allowing transmission pressure pipelines to coexist safely within developments.

This case study resulted in a significant loss of opportunity cost to the public good as a result of applying an inappropriate risk assessment. This case study shows that: -

- Government authorities don't understand how to manage pipeline risk in their developments
- By applying QRA inappropriately w.r.t. high pressure gas pipelines, there is a significant loss to the greater public benefit by excluding significant areas of land for development.
- The loss of development benefit far outweighs the cost to a developer to provide additional pipeline mitigations if it is necessary.
- The pipeline industry has an excellent track record in identifying and managing risk around pipelines allowing development to coexist for the greater good and so the authorities should differ to the industry for appropriate guidance and support.

The clear opportunity from this case study is to ensure the pipeliners and the APGA proactively engage with planning departments at the highest level to educate them on the unique challenges and how pipeliners manage risk under AS2885.

Further discussions with Nikhil Maharaj at the NSW Dept of Energy and Climate Change (previously part of DPIE) has confirmed that the setback distance referred to above now does not prevent development within the setback distance but will trigger a specific QRA if the development includes High Density or Sensitive use. It is clear the NSW government authorities feel more comfortable preventing the consequence of failure by preventing development close to pipelines rather than looking at the specific risks, mitigating the risk further where practical to do so and ensuring the likelihood of failure meets acceptable societal risk tolerance levels.

Whilst a setback/notification distance is a good step, it doesn't address any notifications or changes in land use within the pipeline's ML which are typically much greater than the suggested 125m or 200m. It should be noted however that if the notification distance was the ML then pipeliners would be inundated with notifications which would be impractical so it remains incumbent on the pipeline licensees to be mindful of what is going on around them as it does in any state, with the 5 yearly SMS reviews critical to reviewing any significant changes in land use and in particular sensitive land use.

Queensland

There are limited "licensed" pipelines in developed areas of the state but in discussing the situation with Marshall Holmes of the Qld Dept of Natural Resources and Mining, each local council has their own way of establishing a notification zone around high-pressure gas pipelines. Each council's zone is different and none of them are related to pipeline ML.

Again, educating government authorities and seeking consistency across jurisdictions should be a priority for industry to minimise disputes and improve pipeline risk management

Victoria

It's great to see government planning authorities like the VPA undertaking early-stage master planning SMS workshops with pipeline licensees but there is often a significant black hole in how the requirements of the SMS are actually translated into the planning tools and tender documents. Terminology used by the planning authorities can vary and sometimes SMS findings don't get passed through to the Tender process meaning that developers again find out late about potentially significant pipeline mitigations again leading to dispute.

Master planning also has the issue of how to deal with wide scale pipeline protection. The masterplan might cover 1-3 kms of pipeline which the SMS has identified needs additional protection to maintain an appropriate level of risk in the face of increased population density and or new sensitive uses. Those mitigation costs might lead to tens of millions of dollars and so when the individual developers come along to build their high rise with a 100m facade facing the pipeline easement, do they need to pay for the slabbing in front and the several hundred meters of ML either side of their development because they were first in the street? And how do the developers one street back but well within the measurement length contribute to the costs of protection?

There are mechanisms in place in some states that allow for a "Development Contribution" where the costs of utilities like water and sewer in a broad development area are contributed to by the developer, but this is rarely if ever related to pipeline protection making life harder for pipeliners dealing with individual developers and trying to get consistent outcomes. Inconsistent outcomes also lead to disputes and significant staff and lawyer time and cost.

Summary

Generally speaking, there seems to have been improvement in state planning understanding of high-pressure gas pipelines over the last 10 years, however, there still appears to be significant gaps in understanding pipeline risk and how it impacts critical pipeline infrastructure and public risk.

Pipeline licensees should continue to be proactive in engaging and educating Councils, there appears to be a reasonably good level of referrals from councils to pipeline licensees nowadays although the notification envelopes vary widely. Perhaps with the exception of Victoria and possibly SA in more recent times there still appears to be a distinct lack of appreciation within state planning authorities for how AS2885 and its pipeline licensees manage HP pipeline risk in Australia.

Pipeline licensees and the APGA should do everything possible to engage with and educate state government planning authorities (and the individual planners who come and go within those entities) to ensure: -

- early and informed engagement with pipeline licensees for master planning activities
- use of QRA should be avoided for high pressure gas pipelines wherever possible as it just doesn't accurately assess the actual risks to Australian pipelines
- a clear appreciation of the various terms and document definitions in each state would allow visibility of preliminary SMS findings as they are transferred through from the master planning process to future planning tools and tender packages.
- How to apportion cost for wide scale pipeline protection following Master Planning
- Lobby state governments to develop "Development Planning Contribution" mechanisms to cover large scale pipeline protections in a development area to achieve protection consistency and spread the cost to all proponents within the entire ML and not just the developers fronting the easement.
- Also, can the pipeline industry provide more consistent messaging when we respond?

Conclusion

Even though we think it is the "Agent of Change" or Developer should pay for pipeline encroachment, without better engagement with state planning authorities, The pipeline licensees will continue to "Pay" too!!

About the Presenter

Mark Harris is a Principal Process Engineer Specialising in Process Safety and Risk. Mark has worked in the O&G industry for over 34 years including key projects such as design of the SEAGas pipeline and reversal of the MAPs. He has been facilitating SMS's for the last 14 years including the Design & Construction SMS's for QCLNG, APLNG, GLNG, multiple encroachment SMS's to various Planning Authorities and Developers around Australia and as a technical advisor to the WA and Victorian Planning Authorities.

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