



REPORT


Cardinia Shire Council Pakenham East Precinct Structure Plan (PSP) AS 2885.1 Safety Management Study Workshop and Report

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Role	Name / Title	Signature	
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Executive Summary

This report documents the Safety Management Study (SMS) carried out in accordance with Australian Standard AS2885 Pipelines – Gas and Liquid Petroleum – Part 1 Design and Construction - 2012 Section 2, for the existing APA natural gas pipelines and gas metering station, which lie within the Pakenham East Precinct Structure Plan (PSP).

Generally the pipeline owner is required to undertake an SMS on change of land use as required by the Australian Pipeline Standard AS2885, however in this case the Cardinia Shire Council (Council) commissioned an SMS to expedite the process.

The SMS was conducted on the Pakenham East PSP, presented by Council on the day of the SMS. A full set of Council and APA drawings were available. (Note: not all these drawings were assessed and/or presented on the day of the workshop nor reviewed in any detail and therefore are presented for information only).

This report summarises the following aspects considered at the SMS:

- The nature of the pipelines in question
- The key aspects of the Pakenham East PSP presented that reside near the pipelines
- The threats considered
- The threats requiring Risks Assessment and the findings of those assessments
- The actions required to ensure the ongoing safe operation and maintenance of the pipelines in compliance with AS2885

The SMS assessment found 13 threats requiring Risk Assessment with 4 found to be an Intermediate Threat. Further LOPA analysis was undertaken to determine the Likelihood of failure in more detail based on existing and potential additional mitigations. The LOPA assessments found that generally the threat of failure was as low as reasonably practical in most instances however general consensus among key workshop participants agreed that the addition of a typical trafficable council concrete path above the pipelines within the PSP was appropriate to meet the appropriate level of likelihood commensurate with achieving ALARP.

A number of actions have been outlined in the SMS Actions List relating to construction and post construction activities and require close out to ensure the findings of this SMS are correct.

With all mitigating measures in place and the recommended actions undertaken the risk to the pipeline integrity and all stakeholders is acceptable in accordance with AS2885.1-2012.

SMS Actions

The main actions to be considered from the SMS include:

1. APA are to confirm the location of existing anode beds and are to provide these locations on a plan for subsequent discussion, if required. (Action complete – conformation provided that no anode beds are located in the proposed location of development. Two earthing beds are located within the development area and associated drawings relating to these beds have been included in Appendix 6).
2. APA are to forward the integrity assessment information to LogiCamms for discussion and inclusion within the SMS Report (Action Complete, refer Section 6).
3. APA to consider recoating joints of PL141, pending design and placement of infrastructure which may restrict future access to pipelines.
4. Council/VPA to provide a document detailing the main discussion points from the SMS workshop regarding the placement of the Pakenham East town centre within the pipeline measurement length. (Action Complete, refer Section 6).
5. Council, VPA and APA are to convene a meeting to define the parameters required to undertake appropriate noise surveys. Council/VPA are to include requirements within the PSP Developers Scope of Work for a noise assessment and a mitigation strategy
6. APA are to review dispersion modelling for vented gas with respect to impingement on new residents and consider appropriate mitigation strategies if required.
7. APA to provide Council with APA's standard road crossing drawings so that Council can pass them onto the Developer for consideration when designing their PSP pipeline crossing designs (Action Complete, refer to Appendix 6 for copies of the relevant drawings, along with a Document Checklist).
8. APA to conduct proving works to confirm the depth of the pipelines at all crossing locations.
9. Council/VPA are to include a requirement within the PSP to restrict the height of buildings within 50 m of the gas easement to eliminate the possibility of stress on the pipeline and provide additional protection via minimising the population density within the 12.7 kW/m^2 radiation contour. Whilst this was tentatively decided as a maximum of three storeys, more work is required by Council to establish the appropriate building constraints within the planning scheme.
10. APA are to review and approve the Construction Management Plan, especially with regard to what types of construction vehicles are to be used and where. APA are to agree with Council/Developer on defined locations for heavy vehicle crossings and what additional treatments are required at these crossing points to prevent damage to the pipelines.

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11. Council/APA are to review and approve the locations for future utility crossings of the pipeline, to potentially reduce the need for future HDD crossings.
12. The Construction Management Plan is to mandate that no blasting will be utilised, with APA to review and approve the completed Plan. Similar review is applicable if piling is to occur.
13. The Construction Management Plan will also advise that spoil is not to be stockpiled on the easement. If civil design requires a change of depth of cover, APA must be advised with this change subject to APA approval.
14. APA are to increase the number of marker posts situated within the reclassified T1 and T2 areas and particularly adjacent to the retarding basin.
15. APA are to review and approve the crossing design for all relevant wetlands and watercourses when available.
16. Ensure compaction machinery used during construction meet APA's vibration limits at the pipeline. Construction Management Plan to be updated as required.
17. APA to review construction methodology in Construction Management Plan if piling to occur during PSP development.
18. APA to review and approve crossing design for upgrade of Deep Creek as part of Melbourne Water's drainage scheme.
19. Council/VPA to confirm if additional high voltage cabling will be installed parallel to the pipeline and discuss with APA if present. PSP Development Plan is to include clear requirements and methodologies regarding any new roads and services crossings not considered during the SMS Workshop (in addition to any already known crossings) to safeguard the gas pipeline. APA to approve any nominated requirements or methodologies to be included in the PSP.
20. Existing Coal Tar Enamel pipeline coating is to be replaced with current technology coating for the full width of road reserves where they cross APA's pipelines as per APA Standard. In addition, the provision of APA Standard concrete slabbing would also be required to provide additional protection where pipelines are within road easements.
21. The PSP Development is to include the provision for a standard council concrete access path and marker tape installed to the approval of APA above the pipelines within the PSP where the pipelines are not already subject to concrete slabbing (e.g. within road easements).
22. Per the email provided by Daniel Tucci dated the 2 September 2016, the location and installation type of the two earthing beds known to be located in the development area are to be proved prior to construction.

Continuing liaison between Council, VPA, APA and land developers should ensure that construction activities and post construction activities pose minimal risk to the transmission pressure natural gas pipelines intersecting the Pakenham East PSP. It should be noted that the ultimate safe operation of the pipelines is the responsibility of APA with patrols to become more frequent; signage to have reduced spacing; education of adjacent landowners, developers and builders and regular pipeline checks as part of their updated Safety and Operating Plan.

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Upon satisfactory close out of the actions raised from this SMS workshop, it can be confirmed that with the proposed location classification changes of the pipeline, the requirements of AS2885.1-2012 are met based on the Pakenham East PSP presented (Figure 5-1 and Figure 5-2).