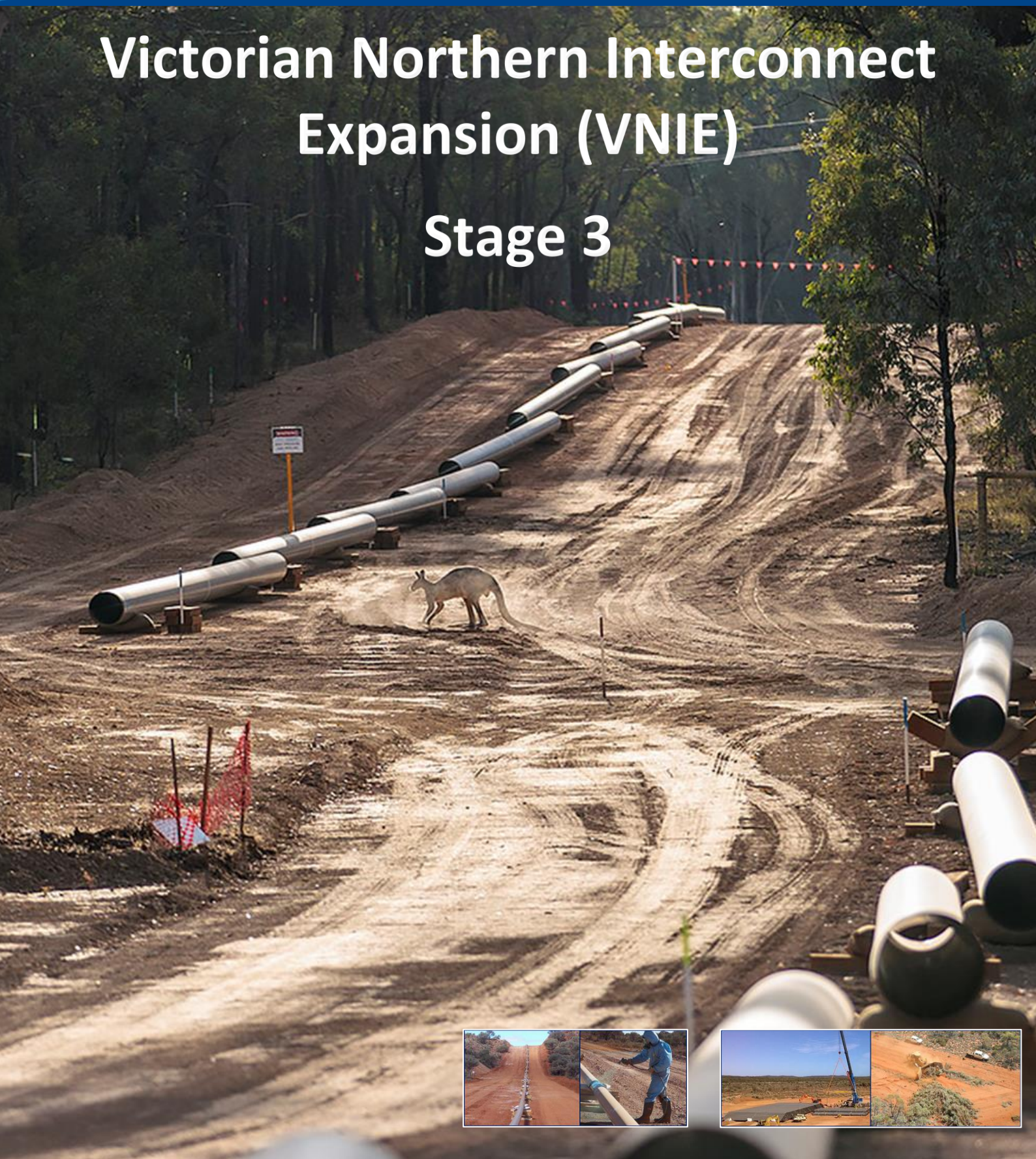


# Victorian Northern Interconnect Expansion (VNIE)

## Stage 3



The international pipeline contractor for landmark projects



## The Project

On the 17<sup>th</sup> December 2015 Spiecapag were awarded the contract for the construction of 165km's of Domestic Gas looping Pipelines as part of a Joint Venture by APA Group.

The project was the third phase of a \$200 million proposal to enable more gas to flow into NSW from existing supply basins by expanding the Victorian infrastructure and to alleviate supply pressures by flowing gas in from other sources.

The Project comprises of 95km's of 400mm Outside Diameter (OD) pipe (in Victoria) and 70 Km's of 450mm OD pipe (in NSW). Overall the project consists of 7 Loops, 2 of which are in NSW and 5 in Victoria.



## Project Schedule

The Project Schedule was aggressive with a very tight window for mobilization and planning, however a team was assembled quickly and all items were in place to commence construction in February 2016.

The project was split into 3 Separable Portions. Separable Portion 1 to be completed in 2016, Separable portion 2 to be completed in 2017 and Separable Portion 3 an environmentally sensitive area that had a very limited

construction window either in 2016 or 2017. Upon Client's request Spiecapag pulled out all the stops to successfully complete the installation and testing of SP 3 in the shorter 2016 allocated timeslot.

## Organisation

As the loops were spread over a 500km distance with 3 office locations each of which had a logistics yard. Offices were located in in Young, NSW, Wangaratta, Vic. and in Cootamundra NSW.

## Construction

Construction of the works was performed by 1 mainline spread, a special points crew and up to 4 Tie-in Crews.

The works is summarized in the table below.

Item	Qty	Description
Pipeline	95km	DN400 API5L X70M WT 8mm, MW 9.6mm, HW 10.7mm, VHW 12.7mm
Pipeline	70km	DN450 API5L X70M WT 6.8mm, HW 9.7mm
Tie-ins, Disconnections & Above Ground Pipework	11	Cross-tie Installations Cross-tie disconnections Interconnect Pipework End of Line Facilities
Main Line Valves	6	
Cathodic Protection		
<ul style="list-style-type: none"> <li>• Test points</li> </ul>	111	
Crossings		
<ul style="list-style-type: none"> <li>• Trenchless Railway Crossing</li> </ul>	4	Total length 294m
<ul style="list-style-type: none"> <li>• Trenchless River Crossing</li> </ul>	4	Total length 1,753m
<ul style="list-style-type: none"> <li>• Trenchless Property Crossing</li> </ul>	2	Total length 587m
<ul style="list-style-type: none"> <li>• Trenchless Road Crossing</li> </ul>	38	Total length 1,488m
<ul style="list-style-type: none"> <li>• Unsealed Road (open cut)</li> </ul>	105	
<ul style="list-style-type: none"> <li>• Track</li> </ul>	96	
<ul style="list-style-type: none"> <li>• Watercourse</li> </ul>	151	
<ul style="list-style-type: none"> <li>• Fence</li> </ul>	893	
<ul style="list-style-type: none"> <li>• U/G Service Crossing</li> </ul>	275	
Induction bends	128	

## Challenges

### Weather

Initial planning was to construct SP1 prior to the winter demobilize and re-mobilise again in September 2016 avoiding the wetter months.

Unfortunately, 2016 was the wettest winter on record in the project area and this heavily impacted the project. Crews continued to work and perform any activities that were accessible through the extremely tough conditions, specialist equipment was mobilized to mitigate any schedule slippage but much of the construction corridor was inundated with water.

The weather also dictated that re-mobilisation of crews to carry out SP2 was delayed as access could not be gained to many of the areas.



### Rock

Areas of rock were encountered that had not been identified in the geotechnical reports, these included large subsurface boulders. Spiecapag dealt with these by mobilizing additional machines with rock breaking attachments and by engaging subcontractors to perform blasting and chemical cracking.

### Quantity of Landowners

Due to the Pipeline traversing semi-rural locations there was a large quantity of land owners all of which had specific requirements. Land Liaison was managed by a dedicated team that visited each landowner prior to and throughout construction to ensure that SPIECAPAG understood what the landowner/occupier's expectations were, if there was any pertinent information about the property that might help the construction crew (unmarked services etc.) and to ensure that the landowner/occupier was fully informed on the processes to be undertaken, duration of works, who to contact from SPIECAPAG etc.

### Working Parallel to an existing pipeline

The entire pipeline was constructed within the easement of an existing high pressure pipeline. Detailed engineering analysis was undertaken to ensure that construction equipment could safely cross the existing line. Construction crews were constantly reminded of the location of the existing line to remain vigilant at all times. All excavation works were performed under a specific permit in the presence of a permit issuing officer from the Asset owner.

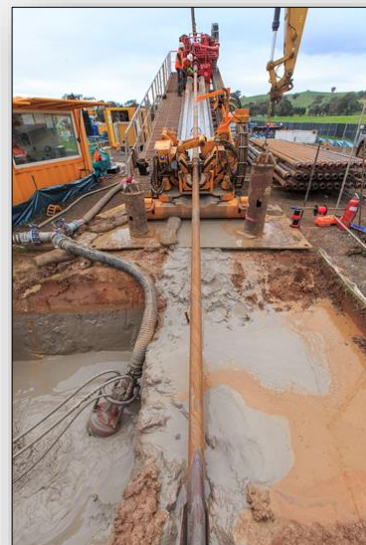
### Quality

Monthly internal audits were performed by the site Quality Team these were supplemented by 2 corporate audits which were undertaken to review all elements of the Project.

As part of Spiecapag's ISO accreditation an audit was undertaken on the project by AFAQ (accreditation body), with no Non-conformances identified.

3 external NDT audits were performed the findings from all 3 were positive.

The welding repair rate was 1.37% this was built up of a repair rate of 1.44% on the mainline and 1.0% for Tie-Ins (SPIECAPAG's KPI is 2.0%).





### Safety

Safety always remains a priority on any of Spiecapag's Projects. A comprehensive safety system was implemented at the start of the project and followed through to completion and handover.

Project Statistics	
No of man-hours worked	630,165
Fatalities	0
Loss Time Incidents	0
LTIFR	0
Medical Treatments	1
TRIFR	1.5

All Safety KPI's established at the start of the project were achieved.

A number of safety initiatives were introduced. The management team identified that driving was a major risk to the project due to the distances that need to be travelled as such the 6<sup>th</sup> Gear Campaign was established and rolled out. This included a number of short videos, safety presentations and flashes that addressed the main risks associated with driving. The campaign was well received and has been incorporated into SPIECAPAG's HSE systems.

During the VNIE Project SPIECAPAG maintained their lost time injury free record in Australia which has now surpassed 1.5 million man hours achieved over the last 4 years since the JV was re-established.

### Environmental

Each state regulator had differing Environmental Controls as such prior to mobilization the Environmental Team produced separate CEMP's for each state to address these requirements and detail the measures that would be implemented. The Environment Team worked closely with the client and regulators through extremely tough conditions to ensure the requirements of both CEMP's were met.

