



**APT Petroleum Pipelines
Limited**

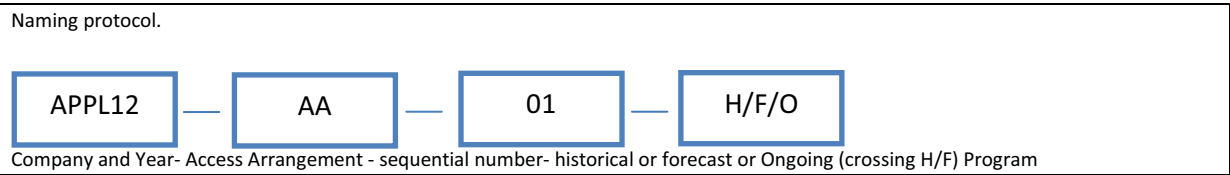
SIB Business Cases

Covering the period
12 April 2012 – 30 June 2017

Attachment 4.2

Attachment 4.2 SIB Business Cases.docx

Index of AA conforming capital documents for Australian Petroleum Pipelines Limited AA submission



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APPL12-AA	04	F	DN250 Coating Refurbishment
APPL12-AA	05	F	Redbank Station Upgrade
APPL12-AA	06	F	Toowoomba Station Upgrade
APPL12-AA	07	O	Vehicle Mitigation
APPL12-AA	08	O	Excavation program
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APPL12-AA	10	H	(MSIB) Digital Data Service Replacement
APPL12-AA	11	H	(MSIB) Collingwood to Ellengrove Pig Trap Modifications
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File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(In-line Inspection (Pigging) Program)

Ref APPL12-AA-01-O

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

2006- 2012

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.

2012 -2017

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;



(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

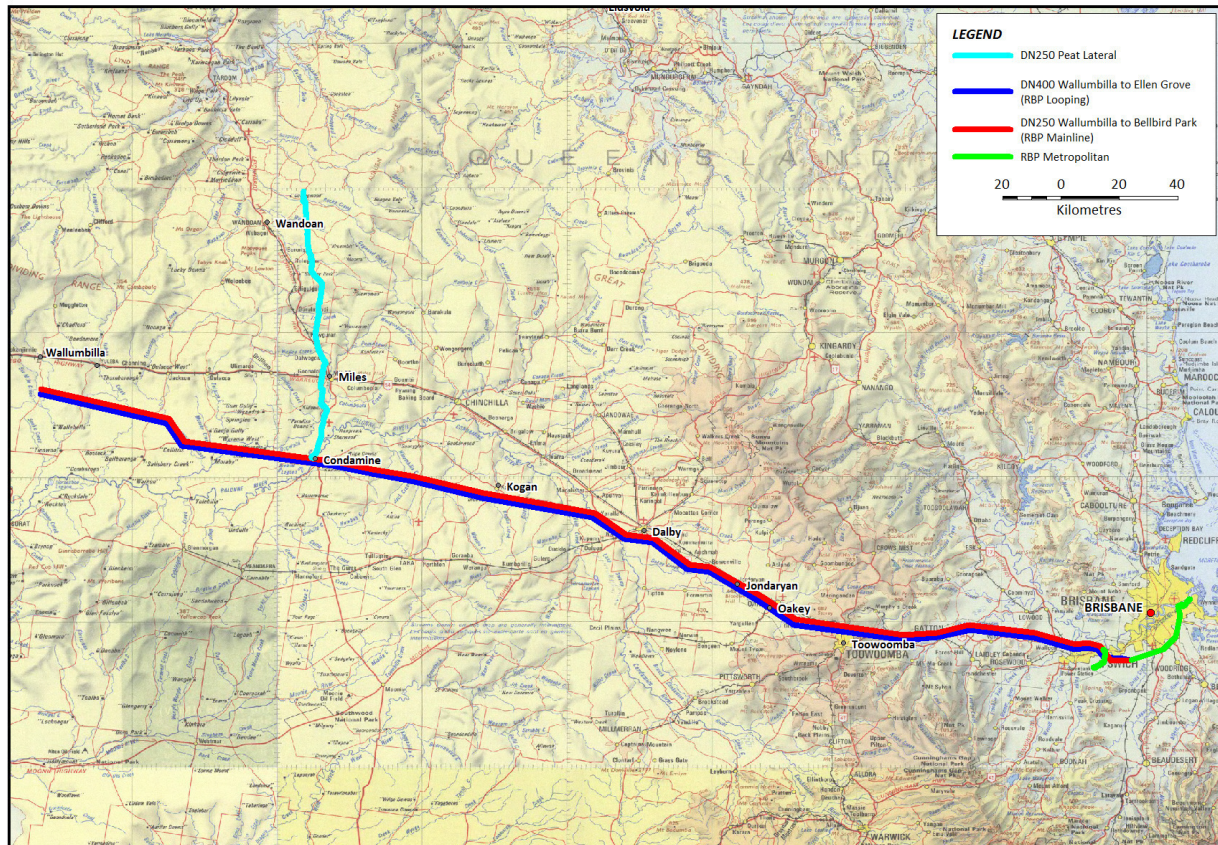
(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).

1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

The four assets form a pipeline link for gas supply comprising the Peat Lateral through to the Roma to Brisbane Pipeline



Overview and Function

The RBP Pipelines are maintained in a fit for purpose condition under the requirements of Queensland Petroleum and Gas (Production and Safety) Regulations (2004) and AS 2885.

The condition of the pipeline assets is critical to public safety and for the continuity of a reliable gas transportation service. In-line inspection (pigging) provides a non-destructive technique to enable an integrity review of the pipe wall for its operational duty and to enable pro-active repair as required.



Current Condition and Asset Integrity

High pressure gas pipelines are constructed with coated steel pipes welded together and buried. The protective coatings though may deteriorate with time, so protective measures are applied to restrict corrosion of the pipe. Protecting large lengths of buried steel is very difficult though and some isolated pipe wall corrosion can be anticipated.

High pressure pipelines could have dramatic failure modes if their integrity isn't appropriately managed. Integrity inspections are therefore a key activity for pipelines and for the RBP pipelines pipe wall inspection using non-destructive in-line tools is possible.

The in-line inspection technique involves high tech tools being inserted into the pipeline and pushed along in the gas stream. As the tool passes through the pipe it utilises a magnetic field to measure the thickness of the pipe wall around 360 degrees. This information allows the pipe integrity to be assessed and repairs scheduled as necessary.

The following table indicates the most recent inspections in each pipeline. Those shown in bold were completed during the current Access Arrangement the following In-line inspections are anticipated for this current year.

Year	Diameter (mm)	Pipeline Section	Cost \$k
2005	DN400	Wallumbilla to Ellengrove (RBP Looping)	N/A
2008	DN250	Wallumbilla to Bellbird Park (RBP Mainline)	1,012
2010	DN 400	Collingwood to Ellengrove (RBP Metropolitan section lateral)	178
2010	DN 250	Peat Lateral	226
2011	DN 300	Metropolitan section	122
2011	DN200	Gibson Island (Metropolitan section Lateral)	563
2011	DN 400	Oakey to Gatton (RBP Looping)	255
2011	DN250	Oakey to Gatton (RBP Mainline)	222
2011	DN400	Wallumbilla to Ellengrove (RBP Looping)	1,032

As part of flood mitigation emergency works the DN400 Oakey - Gatton section was recently inspected out of the normal sequence (February 2011). That survey was scoped for the emergency to confirm the condition of the pipelines severely affected by the flood for possible failure mechanisms involving metal-loss defects and areas where pipeline strain may have become significant.



Failure Experience

The RBP has been kept failure free from corrosion damage, but has previously had repairs carried out on damage and corrosion. Inspection for and management of pipeline anomalies is critical to ensure that failures do not occur.

2 Capital Expenditure Requirement

2.1 Identification of Need

Gas pipelines are normally inspected at intervals determined by calculating the potential development of known and unknown anomalies in the pipe wall. The inspections are scheduled to ensure that all defects in the pipe wall are identified and sized prior to them approaching any integrity concern.

In Queensland, however, the Petroleum and Gas Regulations (2004) require 'Strategic Pipelines' to be inspected at mandated intervals (or sooner). For these Strategic Pipelines the required regular interval is 10 years, following an initial inspection at 7 years. The Peat Lateral is not considered a 'Strategic Pipeline' by the Regulation, but is inspected at least every 10 years under APA policy.

In 2012 the operational pressure range for the DN 400 Wallumbilla to Ellengrove pipeline is to be increased to its allowable maximum. As the pipeline hasn't operated at that level in recent years there will be potentially a greater risk of failure from existing defects. It is therefore appropriate to carry out an internal inspection prior to that event.

During rectification works following the floods near Toowoomba it was discovered that the pipeline had numerous dents, which was a failure mechanism that hadn't been inspected by the Oakey to Gatton pigging. Due to the severity of the dents it has become necessary to re-run the inspection in this section to check the circumference of the pipeline for dents and to gather the xyz data that also wasn't gathered in that section.

The whole DN400 from Wallumbilla to Ellengrove will therefore be inspected in Oct/Nov 2011.

Relevant Standards, Legislation, Regulations

The Petroleum and Gas (Production and Safety) Regulations (2004) Schedule 5 identifies Queensland Licence 2 Pipelines as 'Strategic Pipelines'. Originally this was the DN250 Wallumbilla to Bellbird Park (Roma to Brisbane Pipeline Mainline); but this has subsequently been extended by the inclusion of DN400 Wallumbilla to Ellengrove (Roma to Brisbane Pipeline Looping) and the metropolitan pipeline section in licence 2. Inspection requirements are detailed in Chapter 4, s80.



2.2 Evaluation of Alternatives

The significance of a gas pipeline failure makes routine assessment of the pipe wall condition mandatory for safe and reliable operation. There are four alternative methods for integrity assessment which have differing levels of performance. In-line inspection is possible for the RBP Pipelines and is the only competent technique that is reasonably practical.

Option 1 – In-line inspection

This technique provides a full pipe survey for the asset. This direct measurement technique allows any wall thinning from corrosion or damage to be identified, assessed and repaired as and when necessary. With selected survey options the tool can also inspect for dents and provide detailed locational information (xyz plot)

Option 2 – Pipeline inspection by DCVG inspection and targeted excavation.

ILI is mandatory in Queensland. Other inspection methods can provide useful information, but none have the capability of ILI.

Option 3 – Hydrotest

This technique replicates the original strength testing of the pipeline during construction. It is reliable, but only identifies significant defects by destruction, leaving minor defects undetected. Operationally though the pipeline needs to be removed from service for one to several weeks during which time supply would be severely restrained or suspended. It is an undesirable technique for this application.

Option 1 is selected.

2.3 Plan for Efficient Execution

APA determined that a national tender would enable improved pricing on a basket of inspection work. An initial period of 18 months was selected which enabled 2 financial years of work programs to be combined to provide a sensible bundle.

A Request For a Proposal was issued to four international companies in June 2010, all of which had carried out work with APA previously:

- NDT Systems & Services
- Rosen Australia
- GE Oil & Gas (PII)
- BJ Inspection

Responses were received by July 2010 and following a detailed technical and commercial evaluation an 18 month period contract was awarded to GE Oil & Gas. The tender allowed for a specified range of inspections with the opportunity to add and subtract pipelines as circumstances change. The first inspection under the contract was completed in March 2011.



The DN 400 Wallumbilla to Ellengrove inspection was recently added to the listing with the expectation of pigging being carried out in Oct/Nov 2011. GE Oil and Gas provided a specific costing for that pipeline which was consistent with the agreement.

3 Estimated Costs

The following pigging dates have been established from integrity considerations for the pipelines. The older pipelines are pigged marginally sooner than the standard 10 year interval to ensure that all existing defects are re-inspected prior to the anticipated possible growth rates enabling them to becoming significant. The Lytton Lateral is a relatively new pipeline having been commissioned in 2010. Under the Petroleum and Gas Regulations ILI must be completed prior to the 7th anniversary in August 2017 therefore it has been scheduled for FY 2017.

Scheduled works table

(items shown in bold inside the 2012-17 Access Arrangement timeframe)

Year	Diameter (mm)	Pipeline Section	Forecast Cost \$k
2017	DN200	Lytton Lateral (Metropolitan section Lateral)	150
2018	DN250	Wallumbilla to Bellbird Park (RBP Mainline)	
2020	DN 400	Collingwood to Ellengrove (Metropolitan section lateral)	
2020	DN 250	Peat Lateral	
2021	DN400	Wallumbilla to Ellengrove (RBP Looping)	
2021	DN 300	Metropolitan section	
2021	DN200	Gibson Island (Metropolitan section Lateral)	

4 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery. There are some risks with in-line inspection requiring review of the anticipated requirements of the system during pigging, consideration of the impact downstream of tool difficulties and overall logistical planning

During delivery this project will be delivered by an engineer co-ordinating with operational staff.

5 Justification

5.1 Basis of justification

The capital expenditure already completed is justified in accordance with 8.16(a) (ii) (C) and the forecasted Lytton Lateral is justified in accordance with rule 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Turbine(Compressor) Overhaul Program)

Ref APPL12-AA-02-O

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

2006- 2012

National Gas Access Code

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(ii) one of the following conditions is satisfied:

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2012 -2017

Rule 79 New capital expenditure criteria

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(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overhaul of gas turbine engines utilised along the DN 250 Wallumbilla to Bellbird Pk (Mainline) and on the DN 400 Wallumbilla to Ellengrove (Looping) Pipeline:

Overview and Function

Three compressors are located on the DN 250 Wallumbilla to Bellbird Pk (Mainline) and three on the DN 400 Wallumbilla to Ellengrove (Looping) Pipeline, utilising Solar Saturn turbines with a spare unit maintained under nitrogen protection at Dalby store. The turbines are all of the same generation and their interchange ability enable APA to utilise them as a fleet.

The turbines drive gas compressors that are used to compress gas which enables the pipelines to flow larger volumes to the market. The Brisbane market requires all of the compressors to be operating to meet the peak loads, and three or more at other times. They are selected for operation by the APA Gas Controllers to ensure that pipeline delivery requirements are satisfied.

Current Condition and Asset Integrity

The gas turbines require maintenance on a running hours basis. OEM recommendations are for major overhaul at 30,000 hours. A major overhaul requires the turbine to be removed from service and transported to the manufacturer's workshop. The turbines though operate with clean dry gas under almost ideal conditions and have been proven to operate successfully at longer hours than recommended.

APA's policy is therefore to utilise periodic internal inspections of the machines and to utilise their observed condition to extend the overhaul intervals. Under normal circumstances major overhauls are carried out between 40,000 and 50,000 hours, however duty cycles occasionally require this to stretch in excess of 50,000 hours. At these services turbine blades and wear parts such as seals and shafts are re-worked or replaced. The machines are returned in zero hour condition ie equivalent to new condition.

Failure Experience

Good asset management has enabled APA to maintain its turbine fleet in operational condition over extended maintenance hours. Maintenance of the machines in a timely fashion and the strategy of rotating a spare machine into duty enabled continuous operational performance without catastrophic failure of any unit.

2 Capital Expenditure Requirement

2.1 Identification of Need

Rotating plant require maintenance to ensure they continue to operate reliably. Gas turbine engines operate at high speed with very close machine tolerances and the necessity to remove the machines for manufacturer rebuild.



OEM recommendations are for major rebuilds at intervals associated with the running hours and whilst APA does extend this period, it requires performance monitoring and internal inspections to monitor the engine condition. The overhaul cannot be ignored as performance would degrade with additional running hours and ultimately component failure could result in catastrophic damage.

Relevant Standards, Legislation, Regulations

The operation of the plant isn't covered by specific Regulations.

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative, due to the severity of the untreated risks including catastrophic failure. Under these circumstances personnel safety would be jeopardised and the turbine would be off-line for 3 – 5 days affecting pipeline deliverability.

Option 2 – Complete overhaul to OEM recommendations.

A satisfactory process however, under the operating conditions of the turbines the overhauls would be earlier than actually necessary.

Option 3 – Complete overhaul at an extended interval.

A satisfactory process using asset management techniques to inspect the performance and internal conditions of the engines to enable a safe extension of the overhaul interval.

Option 3 is selected.

2.3 Plan for Efficient Execution

APA has an agreement with Solar Australia for the major overhaul of its turbine engines providing some discounting. There are no viable alternatives to the manufacturers overhaul.

APA has chosen to treat all seven S20 turbines (including the emergency spare) as a fleet and allow them to be interchangeable to maximise efficiency and minimise pipeline disruption due to maintenance. It is anticipated that the operational hours will require one machine to be overhauled most years, however that will be determined by the actual operational hours and may involve relocation of turbines between sites.

With the proposed expansion of the system with the new C50 turbine at Dalby there will be a reduction in the servicing requirement of the S20 machines. This is reflected with reduced overhauls in the later years.



3 Estimated Costs

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12
Budget	\$332k	\$350k	\$362k	\$362k	\$300k
Actual	2	1	0	0	0
Costs	\$397k	\$250k	0	0	0

Costs for 2009-2012 reflect spares machines being brought into operations rather than major overhaul of existing machines. This has resulted in spare machines having high hours currently. Going forward all machines reaching overhaul hours will require manufacturer overhauls.

Estimated costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Scheduled	1	1	0	1	1
Estimated	\$250k	\$250k	\$0k	\$275k	\$275k

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery. The bulk of the expense is incurred from the vendor with APA's work limited to removal, reinstallation and testing.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the reliability of service and the safety of operatives working on the plant.

The capital expenditure already completed is justified in accordance with 8.16(a) (ii) (C) and the forecasted expenditure is justified in accordance with rule 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Unit Control Panel Upgrade)

Ref RBP12-AA-03-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

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(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The RBP pipelines have 6 compressor stations three on the DN 250 Wallumbilla to Bellbird Pk (Mainline) and three on the DN 400 Wallumbilla to Ellengrove (Looping) Pipeline. The stations utilise Solar Saturn turbines which were installed in the 1980s.

The turbines drive gas compressors that are used to compress gas which enables the pipelines to flow larger volumes to the market. The Brisbane market requires all of the compressors to be operating to meet the peak loads, and three or more at other times. They are selected for operation by the APA Gas Controllers to ensure that pipeline delivery requirements are satisfied.

Current Condition and Asset Integrity

The gas turbines each have an on-site control system utilising relay logic equipment. The control system monitors the operating parameters and adjusts the turbine fuel accordingly to ensure good performance and suitable protection for the turbine itself ensuring that it doesn't overheat or enter damaging surge conditions. The relay logic has been reliable over the years, however it is 1980's technology and unsupported by Solar.

Failure Experience

The control panels have performed reliably over 3 decades with repairs utilising replacement components as necessary.

2 Capital Expenditure Requirement

2.1 Identification of Need

Purchase of after-market parts has been possible in recent years with some recycling of obsolete parts, but it is foreshadowed that each of the 6 control panels will need to be replaced in the coming years to maintain operability.

During 2011/12 it is anticipated that a new larger Dalby compressor will be installed on the DN400 Pipeline. This will provide security against failure of the DN400 S20's control systems.

It is therefore proposed to only modify the control systems of the DN250 S20's and rely on the dwindling availability of after-market spares to maintain the obsolete panels of the DN400 machines in operational condition.



2.2 Relevant Standards, Legislation, Regulations

The operability of the plant isn't covered by specific Regulations; however their operation is fundamental to the successful operation of the pipeline.

2.3 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative, due to the requirement for continued operation of compression to meet contract requirements. Failure of the components could leave the DN 250 S20 station unserviceable.

Option 2 – Immediate replacement of the 3 control panels

A satisfactory process, however, with every replacement redundant parts become available for spare holdings, which could delay further capex expenditure. The technique though would allow for a larger scale program potentially reducing the Capex required.

Option 3 – Complete replacement of the control panels, phased.

A satisfactory process, using asset management techniques, to manage the allocation of obsolete spare components to extend the useful life of the original stations. In this manner the installations will be replaced individually and the Capex delayed.

Option 3 was selected.

2.4 Plan for Efficient Execution

APA has reviewed the circumstances related to the control panels and it is proposed to rely on existing spare parts until they no longer meet minimum requirements. This should delay the capital expenditure until 2013. It is then proposed to schedule 1 panel every second year over the following 6 years.

Estimated costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Scheduled	0	1	0	1	0
Estimated		\$1,000k		\$1,000k	

2.5 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery.



3 Justification

3.1 Basis of justification

The work is necessary to ensure the reliability of service.

The capital expenditure already completed and those forecasted are considered to conform to the requirements of the Access Arrangement under sub-rules 79 2 (c) (ii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Coating refurbishment)

Ref RBP12-AA-04-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

Rule 79 New capital expenditure criteria

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(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The coating on the DN250 Wallumbilla to Bellbird Pk (RBP Mainline) is tape wrapped which has served its purpose over the original design life. In recent years the cathodic protection requirement near Wallumbilla has been increasing to the point where an investigation of the coating was necessary.

Current Condition and Asset Integrity

A CIPS survey of approximately 1000m each side of CP unit MP0.9 on the pipeline was completed on the 30th and 31st of May 2011 by Anode Engineering Pty Ltd (Anode). Anode completed the work and reported in June 2011, having identified 22 locations of substantial potential change over very short distances.

This may indicated sites where the coating has failed significantly and the pipeline may be corroding despite having CP protection applied.

Failure Experience

Tape wrap coating has proven to be a reliable and relatively cheap and easy to apply coating. Across pipelines nationally there have been many instances of the coating failing particularly as a result of age and warmer soil temperatures.

2 Capital Expenditure Requirement

2.1 Identification of Need

Additional CP units could be applied to try to increase the level of protection for the steel pipeline however this can further destroy the coating. The amount of CP being applied in this area is significant.

APA therefore engaged Anode to carry out an above-ground 2 km CIPS survey in the area of most concern to review the coating condition. Anode identified 5 areas in their report, totalling 600 metres, where the coating appears to have failed severely. To confirm the finding Anode recommended excavating a 200 metre section initially, followed by the other 100 metre sections.

At this stage just the 600 metres is targeted for excavation and a modern coating re-applied. This will though become an ongoing process as the coating continues to age and similar areas are surveyed for repair.



Assuming that the 2km section of pipeline is damaged as determined by Anode it would be prudent to extend the section to review the adjacent areas. These will no doubt reveal additional coating failure with time and it is proposed to continue the small area testing until either consistent good coating is found. Metal-loss inspection in 2018 will provide further valuable information about the effectiveness of the coating and the applied CP however it may be prudent to continue coating surveys and repair.

2.2 Relevant Standards, Legislation, Regulations

The operability of the coating isn't covered by specific Regulations.

2.3 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative, due to the requirement to maintain a safe pipeline. The coating damage is unknown in extent and similarly the level of corrosion activity taking place.

Option 2 – Do nothing and wait for an in-line inspection

A satisfactory process however neither the extent of coating damage nor the extent of any metal-loss corrosion is known. This pipeline is next due to be inspected in 2018 by which time the corrosion could be extensive.

Option 3 – Complete an initial excavation/recoat program and extend as necessary

A satisfactory process using the Anode CIPS report to target the initial 600 metres of damage for excavation and repair. The excavations will be carried out sequentially enabling the program to be extended or reduced appropriately.

Option 3 was selected.

2.4 Plan for Efficient Execution

APA has identified an initial 600 metres which will be excavated carefully to inspect the coating and to ensure that any metal loss damage isn't significant. This will be carried out by a contractor under a tender arrangement. In subsequent years further surveys will be carried out and it is anticipated that significant efficiencies in the follow up excavation process will be developed.

From a budgetary viewpoint the initial years are budgeted at \$500k which includes the survey and the repair program. It is considered that by the end of 2015/16 the worst sections of the coating in the first 10 km from Wallumbilla will be completed and the annual process will scale down significantly to an ongoing maintenance level.



2.5 Estimated Costs

Estimated costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Scheduled	1	1	0	1	1
Estimated	\$500k	\$500k	\$500k	\$500k	\$100k

2.6 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery.

3 Justification

3.1 Basis of justification

The work is necessary to ensure the reliability of service and the safety of the personnel in the vicinity of the assets.

The capital expenditure is considered to conform to the requirements of the Access Arrangement under sub-rules 79 2 (c) (i) and (ii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Redbank Station Upgrade)

Ref RBP12-AA-05-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The Redbank Meter Station takes gas from the DN400 Wallumbilla to Ellengrove Pipeline (RBP Looping), filters it, reduces its pressure and then meters the flow into the local distribution system.

Current Condition and Asset Integrity

The regulator, filter and metering pipework have design aspects that no longer meet Standards. The design deficiencies include isolation valves that under certain circumstances could be exposed to pressures in excess of their safe design, redundant equipment and a dual-cut pressure cut situation without full redundancy.

The skids are old and in relatively poor condition with corrosion evident in many places

Failure Experience

The site has carried out its role satisfactorily without any major issues.

2 Capital Expenditure Requirement

2.1 Identification of Need

To ensure a safe and reliable supply it is necessary to upgrade the facility to modern Standards. Redundant equipment must be removed and the regulator stream upgraded to provide 100% redundancy and Code compliance.

Relevant Standards, Legislation, Regulations

AS2885

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative as the equipment is not Code compliant and operational safety is dependant upon warning tags which are subject to environmental degradation.



Option 2 – Partial upgrade to maintain Code compliance.

A partial upgrade is possible which would enable excess pressure to be released to atmosphere. This process would enable the current system to be compliant and a second ‘first cut’ regulator could be installed to provide a redundant second stream providing for a system failure backup. The station would though still contain redundant equipment and corroded areas of the pipe work would need to be cut out and replaced.

Option 3 – Complete upgrade.

A satisfactory process and the proposed actions. The process would be to replace the entire station with new code compliant equipment and reset the maintenance requirements to better suit this facility.

Option 3 was selected.

2.3 Plan for Efficient Execution

APA has arrangements with valve suppliers and would utilise procurement to maximise the purchasing benefits. Depending upon work loads and timing the site equipment might be skid built at the APA facilities in Adelaide and shipped as a unit, or built and installed locally. The cheapest and most satisfactory option would be utilised with the APA facility tendering for the work.

3 Estimated Costs

Estimated costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Estimated	450	50	0	0	0

3.1 Overheads and Capitalisation

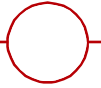
Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery with the downstream parties.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the reliability of service and the safety of operatives working on the plant.

The capital expenditure is considered to conform to the requirements of the Access Arrangement under sub-rules 79 2 (c) (i) and 79 2 (c) (ii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Toowoomba Station Upgrade)

Ref APPL12-AA-06-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The Toowoomba Meter Station takes gas from the DN250 Wallumbilla to Bellbird Park (RBP Mainline) lateral, filters it, reduces its pressure and meters the flow to the Toowoomba township.

Current Condition and Asset Integrity

The regulator, filter and metering pipework have design aspects that no longer meet Standards. The design deficiencies include isolation valves that under certain circumstances could be exposed to pressures in excess of their safe design, redundant equipment and a dual-cut pressure cut situation without full redundancy.

The skids are old and in relatively poor condition with corrosion evident in many places

Failure Experience

The site has carried out its role satisfactorily without any major issues.

2 Capital Expenditure Requirement

2.1 Identification of Need

To ensure a safe and reliable supply it is necessary to upgrade the facility to modern Standards. Redundant equipment must be removed and the regulator stream upgraded to provide 100% redundancy and Code compliance.

Relevant Standards, Legislation, Regulations

AS2885

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative as the equipment is not Code compliant and operational safety is dependant upon warning tags which are subject to environmental degradation.



Option 2 – Partial upgrade to maintain Code compliance.

A partial upgrade is possible which would enable excess pressure to be released to atmosphere. This process would enable the current system to be compliant and a second ‘first cut’ regulator could be installed to provide a redundant second stream providing for a system failure backup. The station would though still contain redundant equipment and corroded areas of the pipe work would need to be cut out and replaced.

Option 3 – Complete upgrade.

A satisfactory process and the proposed actions. The process would be to replace the entire station with new code compliant equipment and reset the maintenance requirements to better suit this facility.

Option 3 was selected.

2.3 Plan for Efficient Execution

APA has an arrangement with valve suppliers and would utilise procurement to maximise the purchasing benefits. Depending upon work loads and timing the site equipment might be skid built at the APA facilities in Adelaide and shipped as a unit, or built and installed locally. The cheapest and most satisfactory option would be utilised with the APA facility tendering for the work.

3 Estimated Costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Estimated					\$450k

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery with the downstream parties.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the reliability of service and the safety of operatives working on the plant.

The capital expenditure is considered to conform to the requirements of the Access Arrangement under sub-rules 79 2 (c) (i) and 79 2 (c) (ii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Vehicle Mitigation)

Ref APPL12-AA-07-O

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

2006- 2012

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



2012 -2017

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

Protective vehicle barriers to protect above ground pipeline equipment at Wallumbilla, Lytton Road, Ritchie Road, Moggill Ferry Road, Norwin Road, Bowenville, Toowoomba, Oakey and other sites that will be identified through safety management studies.

Current Condition and Asset Integrity

Gas pipelines utilise above ground stations for ease of access to the sensitive pipeline equipment. The equipment is housed in suitably sized compounds designed to restrict public access including protection by fencing and locked access gates.

AS 2885 processes the potential for all threats to be considered and where risks are unsatisfactory to modify the threat, the frequency or the consequence. In addition, DEEDI had identified issues with the infrastructure at Wallumbilla requesting APA to review the arrangements.

ARUP Risk Consulting recently completed a Safety Management Studies regarding the possibility of vehicles leaving the road carriageway and crashing into these installations under out of control circumstances and concluded that eight sites needed to be upgraded appropriately to withstand that event.

ARUP's considerations have identified the additional protective measures required and that mitigation technique reflects the site specific situation.

Failure Experience

The RBP hasn't experienced this level of damage; however a vehicle leaving the road carriageway at speed could crash through the fencing and potentially destroy the pipeline equipment leading to a significant fire and explosion hazard.



2 Capital Expenditure Requirement

2.1 Identification of Need

There is a requirement to upgrade the vehicle protection at many sites to safeguard the assets and the public. The following examples of works conducted previously, include a number of different mitigation techniques. There will be ongoing works based upon priority for less critical sites which will continue over a number of years.

Site	Protective Measure Required
Toowoomba	Barrier 55 metres long
	2 metre Diameter, fire rated concrete cylinder
	Barrier 20metres long
Wallumbilla	Ditch with concrete back wall 15 metre barrier
	Ditch, 25 metre earth embankment, 8 metre barrier
Ritchie Road	Gravel arrester bed 30m x 10m
	Barrier 30 metres long
Norwin Road	"T" concrete element + Earth wall
Bowenville	Concrete wall 25 metres long
Lytton Meter Station	Concrete wall ~30 metres long

Relevant Standards, Legislation, Regulations

AS 2885 requires unsatisfactory risk levels to be mitigated to Low or Negligible risk levels.

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative, as the pipeline would continue to be operated with unsatisfactory risk levels against AS2885 requirements.

Option 2 – Install specifically designed mitigation.

Immediate mitigation, by the installation of protective barriers to resist or divert "out of control" motor vehicles to remove potential impact with the gas pipeline and its facilities.

Option 2 was selected.

2.3 Plan for Efficient Execution

The work has been contracted to FKG Civil Pty Ltd for construction over a period. In some cases additional permissions are required for the local road authority to enable the placing of barriers outside of APA's site compound.



3 Estimated Costs

The remaining sites works are spread out over a six year construction period, but reviewed annually to ensure that any further changes to site circumstances can be addressed.

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12 F
Budget	\$0k	\$0k	\$0k	\$300k	\$300k
Costs	\$0k	\$0k	\$0k	\$213k	TBA

Estimated forecast costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Costs	\$200k	\$200k	\$100k	\$100k	\$0k

3.1 Overheads and Capitalisation

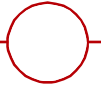
Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work, the necessary approvals and to manage the delivery. The bulk of the expense will be incurred from the vendor carrying out the installations.

4 Justification

4.1 Basis of justification

The work is necessary to protect the site compounds to maintain the integrity of the equipment and to ensure the safety of operatives working on the plant.

The capital expenditure already completed is justified in accordance with 8.16(a) (ii) (C) and the forecasted expenditure is justified in accordance with rule 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Excavation Program)

Ref APPL12-AA-8-O

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

2006- 2012

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



2012 -2017

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The DN 250 Wallumbilla to Bellbird Pk (Mainline) and on the DN 400 Wallumbilla to Ellengrove (Looping) Pipelines are relatively old with coatings that have aged. The coating provides a barrier to the surrounding soil to stop corrosion, however where the pipe coating has deteriorated allowing the pipe be in electrical contact with the surrounding soil, corrosion will occur.

Routine excavations are carried out annually, targeting the worst integrity threats on the pipeline. These excavations allow for measurement of defects which confirming the accuracy of the reporting survey allowing adjustment should the method utilised prove too conservative or non-conservative. Review and repairs ensure that the pipelines continue to operate in a safe and reliable condition.

Current Condition and Asset Integrity

The DN 250 mm pipeline in particular has exceeded its original design life of 30 years, and the coatings are failing. The tape wrapped coating has served the pipelines well over decades, but has deteriorated with time allowing the soil to become in electrical contact with the pipe wall. In addition, excavation work in the vicinity of the pipeline and ground movement from wet/dry cycles both can impact the coating effectiveness.

To reduce that corrosion significantly, cathodic protection is applied to the pipe as a secondary protective measure to give it a negative potential relative to the soil and thus reduce corrosion. The secondary protective systems though are struggling to fully protect the pipeline and maintain the steel in good condition.

In-line surveys of the pipe wall condition indicate that widespread minor corrosion has already occurred on the pipelines and that the pipe wall also has a large number of dents which may require inspection.

Failure Experience

Good asset management has enabled APA to maintain its pipelines in fit for purpose condition by routine defect excavation and assessment in association with cathodic protection performance, in-line surveys and above ground coatings surveys to identify defects that if left would ultimately threat pipeline integrity.

2 Capital Expenditure Requirement

2.1 Identification of Need

Buried steel pipelines will deteriorate if they are not maintained. APA uses internationally proven techniques to monitor the condition of the pipe wall which enables areas of interest to be identified. Once identified, they can be prioritised and scheduled for excavation, inspection and repair. Without this work program the pipelines would ultimately fail.



Relevant Standards, Legislation, Regulations

AS 2885.3 requires pipeline integrity management to ensure that the high pressure pipeline infrastructure remains fit for purpose.

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative, due to the severity of the untreated risks including catastrophic failure.

Option 2 – Excavation, inspection and repair of all identified pipe and coating anomalies.

A satisfactory process however, the costs involved would be excessive due to the requirement to excavate and inspect pipe wall defects that may not actually creating a corrosion possibility, due to the cathodic protection being applied.

Option 3 – Excavation, inspection and repair of identified pipe and coating anomalies impacting pipeline integrity.

A satisfactory process using asset management techniques to gather and review all sources of data to enable a prioritisation of defects into those requiring inspection and those which won't provide integrity threat in the near future.

Option 3 was selected.

2.3 Plan for Efficient Execution

Excavations are determined in a program form annually. Where large numbers of defects require attention a contractual tender process could be adopted, however recent programs have been carried out by Agility and currently APA labour has the capability to deliver these minor works internally. Should this workload escalate contractual arrangement will be sort.



3 Estimated Costs

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12 F
Budget	\$180k	\$183k	\$185k	\$180k	\$225k
Actuals	\$170k	\$33k	\$79k	0	TBA

During 2010/11 excavation works were limited to pigging validations as part of the pigging program.

Estimated costs (\$15k per dig)

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Est Digs	15	15	15	15	15
Costs	\$225k	\$225k	\$225k	\$225k	\$225k

Note: The excavation works will be distributed between the assets on a condition basis. In general this would be:

DN 250 Wallumbilla to Bellbird Pk (Mainline) 70%
 DN 400 Wallumbilla to Ellengrove (Looping) Pipeline: 30%

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery. Internal Engineering staff would normally attend site works and ‘sentence’ the defects as those requiring physical support using clamps etc. and those which can be repaired by grinding and recoating.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the reliability of service and is a process to meet the requirements of AS 2885.

The capital expenditure already completed is justified in accordance with 8.16(a) (ii) (C) and the forecasted expenditure is justified in accordance with rule 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Swanbank Isolation Valve)

Ref APPL12-AA-09-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The Swanbank lateral transports gas from the Metropolitan Pipeline DN 300 at Redbank to the Swanbank Power Station. This pipeline is directly connected to the Collingwood - Ellengrove Lateral which feeds Brisbane.

Current Condition and Asset Integrity

A failure of the Swanbank Lateral particularly through 3rd party damage would directly impact the Metro Pipeline via the interconnection with the Ellengrove Pipeline.

Failure Experience

N/A

2 Capital Expenditure Requirement

2.1 Identification of Need

The potential for an isolated incident involving minor damage near Swanbank to disrupt the gas supply to the city of Brisbane is a cause for concern. This is very undesirable and it is proposed to install a new isolation located near Collingwood to allow the sections to operate independently of each other during an emergency. This valve would enable the Swanbank lateral to be decommissioned for repair whilst the main feed to Brisbane continues to operate normally, and visa versa.

Whilst installing a valve is physically possible, prior to spending the funding it is considered necessary to review the full impact of such a change under a wide variety of possible scenarios to determine whether the positioning and method is optimised with no unforeseen negative impacts elsewhere.

Relevant Standards, Legislation, Regulations

N/A

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative. A small incident on the Swanbank lateral could create the need for emergency actions that inadvertently cause a disruption to the Brisbane gas supply system



Option 2 – Install the valve immediately.

Whilst this may resolve the immediate concern by facilitating isolation of the two systems it would require a live isolation and bypass works to enable the valve to be inserted at the location involved. Technically this is possible but the welding and fitting costs make this an expensive option at approximately 50% higher cost than a dead pipeline cut out.

Option 3– Review the valve installation proposal to ensure that it is optimised

An engineering assessment and risk evaluation of the Swanbank isolation proposal will be used to ensure that the process is optimised.

Option 3 was selected.

2.3 Plan for Efficient Execution

APA has considerable expertise in these design processes and will utilise external consultants as necessary.

3 Estimated Costs

Estimated costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Estimated		\$50k	\$450k		

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to facilitate the study utilising internal and external resources as necessary. Installation would require a local project manager to co-ordinate the liaison with government bodies and gas supply operations.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the reliability of service and any regulatory requirements.

The capital expenditure already completed and those forecasted are considered to conform to the requirements of the Access Arrangement under sub-rules 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Minor Capital – Digital Data Service Replacement)

Ref APPL12-AA-10-H

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

Telstra's transformation program planned for the decommissioning of their Digital Data Service (DDS) Low Speed product towards the end of 2009 / early 2010. APA utilised the service for SCADA communications between the SCADA located at Upper Mount Gravatt and the field sites.

Current Condition and Asset Integrity

Without the change in technology, communication between the field sites and SCADA would be lost when Telstra turned off their DDS.

Failure Experience

N/A

2 Capital Expenditure Requirement

2.1 Identification of Need

The decommissioning by Telstra of their communication service forced the change to a new platform.

Relevant Standards, Legislation, Regulations

The operation of the equipment isn't required by specific Regulations.

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option was not considered a viable alternative. To manage the pipeline asset SCADA is a necessary tool enabling monitoring and control actions. Without communication between site and Upper Mount Gravatt SCADA would be inoperable.

Option 2 – Proactive replacement of communications system

A satisfactory process ensuring continued communications.

Option 2 was selected.



2.3 Plan for Efficient Execution

The work was commenced by Alinta utilising in-house expertise. 28 sites were scheduled for completion between November 2007 and June 2008.

3 Estimated Costs

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12
Budget	300	\$100k			
Sites		28			
Actual		\$294k			

Alinta estimated the installation of the equipment at \$400k, however the actual costs were \$294. The positive variance was recorded because the work was commenced by Alinta internal employees and completed by internal APA employees.

3.1 Overheads and Capitalisation

The work was completed by Alinta to replace the existing hardware which was destined to become redundant.

4 Justification

4.1 Basis of justification

The work was necessary to ensure the reliability of service.

The capital expenditure already completed was considered to conform to the National Gas Access Code requirements under section 8.16 (a) (C).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Collingwood to Ellengrove Pig Trap Installations)

Ref APPL12-AA-11-H

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

Pig traps allow for the insertion and removal of cleaning and inspection tools into a live pipeline. The Collingwood to Ellengrove Pipeline was constructed without those necessary facilities.

The pig traps were required to facilitate in-line inspection of the lateral to satisfy the QLD regulatory requirement for "Strategic Pipelines", which requires in-line inspections at maximum intervals of 10 years (7 on the initial run).

The data gathered from the in-line inspection provides a picture of the pipe wall integrity enabling integrity management processes.

Current Condition and Asset Integrity

The initial design allowed for the installation of permanent facilities at each end of the pipeline. However during installation the design for Collingwood was modified to a temporary removable unit requiring additional work.

Additionally during the work it was identified that a hot tap was required due to a leaking bypass plug valve.

Failure Experience

N/A

2 Capital Expenditure Requirement

2.1 Identification of Need

Without the installation of pigging facilities the integrity of the pipeline couldn't be monitored using in-line inspection tools. This is mandated in Queensland Regulations.

Relevant Standards, Legislation, Regulations

The Petroleum and Gas (Production and Safety) Regulations (2004) Schedule 5 identifies Queensland Licence 2 Pipelines as 'Strategic Pipelines'. Originally this was the DN250 Wallumbilla to Bellbird Park (Roma to Brisbane Pipeline Mainline); but this has subsequently been extended by the inclusion of DN400 Wallumbilla to Ellengrove (Roma to Brisbane Pipeline Looping) and the metropolitan pipeline section in licence 2. Inspection requirements are detailed in Chapter 4, s80.



2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered an option due to the demand for integrity information and the need to comply with Regulation.

Option 2 – Install pigging facilities at Collingwood and Ellengrove.

A satisfactory process and the only viable option.

Option 2 was selected.

2.3 Plan for Efficient Execution

The work was carried out utilising APAs design and procurement with installation by contractors. Fabrication of key components, including minor piping and valves, was tendered to two approved suppliers.

3 Costs

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12
Budget			\$423k		
Actual			\$453k		

3.1 Overheads and Capitalisation

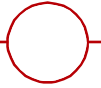
Due to the complex nature of this project a local project manager was appointed to develop the planning for the work and manage the delivery.

4 Justification

4.1 Basis of justification

The work was necessary to ensure the reliability of service and conformance with the Regulation.

The capital expenditure already completed was considered to conform to the National Gas Access Code requirements under section 8.16 (a) (C).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
| (Geotechnical Mitigation - Toowoomba)

Ref APPL12-AA-12-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

2012 -2017

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The RBP DN250 runs down the Toowoomba escarpment at an acute angle. Halfway down the escarpment the pipeline enters a short steel casing positioned to protect the section of pipeline where it crosses under two railway lines.

Current Condition and Asset Integrity

Past history indicates that the escarpment has been unstable generally, but particularly near the crossing point. Measurements taken on site by APA personnel in June 2008 and August 2009 indicated that the steel casing had been slowly slipping down the escarpment. This was further supported by annual survey data.

Over the years several surveys have been completed, but the data and measurement processes had never been fully developed into a rectification program. The rain and floods of 2010-11 led to major earth movement on the escarpment including a washaway of the railway line. Urgent response to safeguard the pipelines involved pressure reduction and a cut-out to replace a failed section. The affected area of the escarpment was re-established however the geotechnical concerns are still valid requiring a new study and remedial works.

Failure Experience

The DN 250 pipeline failed in 2011 due to the ground movement dragging the pipeline down the escarpment. The pipe failed and split open at the bottom of the escarpment. At the top of the escarpment tensile stresses didn't cause failure however they couldn't be relieved. Subsequent ILI indicated that they were within a satisfactory range.

2 Capital Expenditure Requirement

2.1 Identification of Need

It is proposed to engage an industry expert to perform an inspection and advise on any direct threats to the RBP DN250 in the known land slippage region over the Toowoomba escarpment. The study will take into account land slip characteristics, historical events and data, influence on pipe casing/rail crossing, routine land survey results and the effects of persistent wet weather.

The outcome will be a rectification and management plan for the escarpment, including evaluation of the risk of further pipeline failure due to land slippage.

2.2 Relevant Standards, Legislation, Regulations

AS 2885 requires the pipeline to be maintained in a safe condition.



2.3 Evaluation of Alternatives

Option 1 – Do nothing

The ‘Do Nothing’ option is not considered a viable alternative. The escarpment and particularly the casing were concerns prior to the escarpment slipping and the rectification works haven’t resolved those concerns. Failure to resolve the sleeve slipping particularly and easement area of the escarpment generally are necessary.

Option 2 – Carry out a further investigation of the escarpment and the sleeve; recommend rectification works and maintenance strategy.

This is the necessary solution ensuring that the pipeline can continue to operate in a safe and reliable condition

Option 2 was selected.

2.4 Plan for Efficient Execution

APA would engage a suitable consultant to evaluate the pipeline and easement and make the necessary recommendations

3 Estimated Costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Estimated	\$250k				

There is a potential for some significant rectification works to be required however that cannot be assessed in advance of the study.

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to facilitate the study utilising external resources. The physical works will be carried out by a combination of contractors, including plant services and APA. Installation would require a local project manager to co-ordinate the liaison/approvals with the other authorities.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the integrity of service.

The capital expenditure is justified in accordance with rule 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Geotechnical Mitigation – Redbank/Swanbank Lateral)

Ref APPL12-AA-13-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

At Redbank and Swanbank Lateral in the Metropolitan section of the RB and were installed above areas of known underground coal mining activities.

Current Condition and Asset Integrity

The underground coal mines are now disused but suffer collapse and on some occasions subsurface fires. In recent years media has reported sink holes that have appeared in roads and some cases houses that have sunk.

Either of these situations occurring on the pipeline alignment could create immediate integrity threats for the pipeline.

The pipelines are otherwise in good condition.

2 Capital Expenditure Requirement

2.1 Identification of Need

It is proposed to engage an industry expert to perform assessment of any direct threats to pipelines in the Redbank & Swanbank areas. The assessment will be based on previous Geotechnical studies performed by Coffey in 2000, 2006 & 2008 and compare the mining locations and their condition to the pipeline locations.

Outcomes of the study will provide relationship between ground dynamics and any probable resultant stress raisers on the pipelines due to subsurface collapses; identify risks of potential failure and all mitigation options.

Relevant Standards, Legislation, Regulations

AS2885 requires the pipeline to be maintained in a safe and reliable condition.

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative. It is necessary to maintain awareness of the pipelines condition and any potential threats.

Option 2 – Relocate the pipelines.

The pipelines interact with the mining leases and relocation would be excessively expensive and may not be possible.



Option 3– Identify the threats and manage

A geotechnical study in 2012-13 would be carried out to enable mitigation to be designed. Monitoring points would be established with pipeline strain measurement and over the following two years where ground movement is anticipated excavation of the pipelines at those locations to allow ground movement without over-stressing the pipeline.

Option 3 was selected.

2.3 Plan for Efficient Execution

APA would contract a reputable consultant for the investigative work. Recommendations made would be considered and suitable resources engaged. In general APA would contract minor earthworks and the installation of strain gauges to experienced industry professionals.

3 Estimated Costs

The initial year would be limited to a consultant’s study, unless ground subsidence occurs creating an immediate threat.

The following two years would involve excavation of any affected pipeline sections and the establishment of position monitoring systems. Where integrity is considered to be at threat the pipeline will be excavated immediately in that vicinity and supported in the open trench to allow for ground movement independent of the pipeline. Once ground settlement has occurred the pipeline would be reburied.

Estimated costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Estimated	\$50k	\$300k	\$300k		

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to facilitate the study utilising internal and external resources as necessary. Installation would require a local project manager to co-ordinate the liaison with government bodies and gas supply operations.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the integrity of services.

The capital expenditure is justified in accordance with rule 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Design Life Review RBP - DN 250)

Ref APPL12-AA-14-H

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

The DN 250 Wallumbilla to Bellbird Park (Roma to Brisbane Mainline) Pipeline was constructed and commissioned in 1969. This involved a pipeline from Wallumbilla to Brisbane pipeline, with smaller lengths of DN300 and DN200 pipelines at the end of the line.

Overview and Function

The original nominated 'design life' of the pipeline wasn't documented in 1969, however, it is expected that it was in the order of 30 – 40 years, as that was common practice. The pipeline therefore had reached the end of its designed life and a formal technical review of its suitability for additional useful life, including resetting the pipelines 'design life', was necessary.

Current Condition and Asset Integrity

The pipeline continues to operate satisfactorily, however reaching the end of the design life is a significant situation requiring a thorough review of the pipeline and its equipment's physical condition and compliance to current codes to determine whether the useful life can be safely and reliably extended and thus establish a new design life after which another significant review would be necessary.

Failure Experience

N/A

2 Capital Expenditure Requirement

2.1 Identification of Need

A pipeline reaching the end of the design life is a relatively new experience in Australia, and occurred here as the RBP DN 250 is one of the older pipelines in operation. AS 2885.3 Section 8 details the fundamental requirements for a design life review which are mandatory.

Relevant Standards, Legislation, Regulations

AS2885.3 Section 8.5 Review of Design Life.

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative.



Option 2 – Complete design life review.

A satisfactory process as mandated by the Standard to enable the pipeline to continue operating.

Option 2 was selected.

2.3 Plan for Efficient Execution

This was conducted by Alinta and utilised external consultants as necessary.

3 Estimated Costs

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12
Budget	\$339k				
Costs	\$169k				

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager was appointed to develop the planning for the work and to manage the process delivery.

4 Justification

4.1 Basis of justification

The work was necessary to ensure the reliability of service and compliance with Standards.

The capital expenditure already completed was considered to conform to the National Gas Access Code requirements under section 8.16 (a) (C).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Hazardous Area Rectification)

Ref APPL12-AA-15-O

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

2006- 2012

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



2012 -2017

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The Roma to Brisbane Pipelines were constructed and commissioned in accordance with the codes of the day where they existed. Over the years these codes have been updated and modified and in some cases new Australian codes have been written, generally increasing the standards being applied to pipeline equipment

Current Condition and Asset Integrity

Independent review of the RBP pipeline in 2000 indicated that portions of the electrical installations were not compliant with the current Australian Standards.

Some equipment was found to meet overseas standards, other equipment found to be incorrectly installed voiding the manufacturers hazardous area certification, and some equipment was not suitable for installation in hazardous areas.

Failure Experience

There have not been failures as a result of non-compliance, as the equipment was designed and installed with an understanding of the conditions in the working environment.

2 Capital Expenditure Requirement

2.1 Identification of Need

There are though non-compliances with current codes. Whilst the code improvements may not have related to pipeline experiences, as new codes are written or updated they have a mandatory impact on the pipeline installations.

A full review of the APA sites is necessary to determine the extent of non-conformance, generate an action plan and carry out the corrective actions. It is difficult to determine exact costs because until the sites are audited it is unknown what will need rectification.

Relevant Standards, Legislation, Regulations

AS 2885.1 section 6.2.4.1 requires that “hazardous areas shall be determined for each site in accordance with AS/NZS 60079.10 and AS/NZS 2430.3.1 and AS/NZS 2430.3.4 or other approved Standard.



2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option is not considered a viable alternative.

Option 2 – Complete design life review.

A satisfactory process as mandated by the Standard to enable the pipeline to continue operating.

Option 2 was selected.

2.3 Plan for Efficient Execution

APA has considerable expertise in these processes and utilises external consultants for compliance checks, design and in many cases field rectification as necessary.

3 Estimated Costs

It is difficult to determine exact costs because until the sites are audited it is unknown what will need rectification.

Historical

Year	2007/08	2008/09	2009/10	2010/11	2011/12
Budget	\$200k	\$140k	\$235k	\$225k	\$200k
Actual \$	\$0	\$50k	\$90k	\$250k	\$0k

Estimated

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Budget	\$250k	\$250k	\$250k	\$250k	\$250k

Note: The costs will be distributed between the assets on a condition basis. In general this would be:

DN 250 Wallumbilla to Bellbird Pk (Mainline)	40%
DN 400 Wallumbilla to Ellengrove (Looping) Pipeline	40%
Metropolitan section	20%

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the work and manage the delivery. The bulk of the expense is incurred from the vendor with APA's work limited to auditing sites, removal, reinstallation and testing.

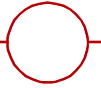


4 Justification

4.1 Basis of justification

The work is necessary to ensure the reliability of service and compliance with Standards.

The capital expenditure already completed is justified in accordance with 8.16(a) (ii) (C) and the forecasted expenditure is justified in accordance with rule 79 2 (c) (ii) and 79 2 (c) (iii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Fuel Gas Piping Modifications)

Ref APPL12-AA-16-H

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

Three compressor stations, Yuleba, Kogan and Condamine were constructed utilising a purpose build heat exchanger facility. These heat exchangers involved concentric pipes allowing heat exchange between the hot compressed gas leaving the station and the inlet gas supply.

The system was a simple design to utilise the waste heat to ensure that the fuel gas was warmed and therefore liquids free, removing a potential cause of premature failure mechanism for the gas turbine blades during operation.

Current Condition and Asset Integrity

Whilst simple and effective in design, thermal fatigue and vibration caused failure of the inner fuel pipe. Due to the design, repairs were very difficult and inspection of the internal pipe impossible.

Failure Experience

Since 1982 there had been three recorded failures of the internal fuel gas line inside the compressor discharge line (Dalby, Kogan and Oakey). The failures were attributed to the thermal expansion and shrinkage of the smaller fuel gas line due to the stop/start cycling of the compressor station as well as the internal pipe vibration due to the gas turbulence.

2 Capital Expenditure Requirement

2.1 Identification of Need

The concentric heaters were unsuitable and needed to be removed. At these three locations it was determined that the heaters was not required, so piping modifications were adequate avoiding the need to upgrade the Fuel gas heaters.

Relevant Standards, Legislation, Regulations

N/A



2.2 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option was not considered a viable alternative. The concentric system had already suffered 3 failures from vibration and fatigue.

Option 2 – Remove the heat exchangers.

A satisfactory process, alteration to the gas pipework bypassing the original heaters.

Option 3 – Replace the heat exchangers with electrical heating

A satisfactory process, removing the concentric units completely and replacing them with electrical heating to maintain the inlet gas temperature.

Option 2 was selected as the least cost solution.

2.3 Plan for Efficient Execution

Agility managed the design and construction utilising contract labour for the field works.

3 Estimated Costs

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12
Budget		\$220k			
Actual		\$194k			

3.1 Overheads and Capitalisation

The project was originally managed by Agility. The final stages of this project were managed by internal project management.

4 Justification

4.1 Basis of justification

The work was necessary to ensure the reliability of service and safety working in the vicinity of the operating compressors.

The capital expenditure already completed was considered to conform to the National Gas Access Code requirements under section 8.16 (a) (C).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Motor Vehicle and Mobile Plant Replacement Program)

Ref APPL12-AA-17-O

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

2006- 2012

National Gas Access Code

8.16 (a) Subject to sections 8.16(b) and sections 8.20 to 8.22, the Capital Base may be increased under section 8.15 by the amount of the actual New Facilities Investment in the immediately preceding Access Arrangement Period provided that:

(i) that amount does not exceed the amount that would be invested by a prudent Service Provider acting efficiently, in accordance with accepted good industry practice, and to achieve the lowest sustainable cost of providing Services; and

(ii) one of the following conditions is satisfied:

(A) the Anticipated Incremental Revenue generated by the New Facility exceeds the New Facilities Investment; or

(B) the Service Provider and/or Users satisfy the Relevant Regulator that the New Facility has system-wide benefits that, in the Relevant Regulator's opinion, justify the approval of a higher Reference Tariff for all Users; or

(C) the New Facility is necessary to maintain the safety, integrity or Contracted Capacity of Services.

(b) If pursuant to section 8.20 the Relevant Regulator agrees to Reference Tariffs being determined on the basis of forecast New Facilities Investment, the Capital Base may be increased by the amount of the New Facilities Investment forecast to occur within the new Access Arrangement Period determined in accordance with sections 8.20 and 8.21 and subject to adjustment in accordance with section 8.22.



2012 -2017

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The vehicle fleet includes general 4wd vehicles, heavy vehicles and plant.

Current Condition and Asset Integrity

The vehicles are maintained in a 'fit for purpose' condition. Passenger vehicles are normally replaced at a 5 year interval whilst heavy vehicles and plant are replaced on a 10 year interval.

Failure Experience

The servicing and replacement intervals have proven to be effective for the operation of the vehicle fleet under the pipeline conditions. Accidents and operational damage might result in replacements earlier than programmed however this isn't anticipated.

2 Capital Expenditure Requirement

2.1 Identification of Need

The vehicle replacements are scheduled across the financial years based largely upon age with a kilometres limit bringing some forward. The light vehicles which are owned are replaced on a 5 year schedule and the heavy vehicles on a 10 year basis although the fleet currently contains a number of leased vehicles with 4 year, 120,000 km interval.

Vehicle Class	Typical Model	Number	Replacement Interval (years)	Unit Cost (\$,000s)
4WD Dual Cab	Toyota Hilux	13	5	95
4WD Tray	Toyota Landcruiser 70	3	5	119
4WD Passenger	Toyota Prado	2	5	100
Heavy Vehicle	Isuzu Tipper	2	10	200
Plant	Trailer	17	10	2
Plant	Backhoe	1	10	50

The 5 year budget has been prepared with the expectation of all the light vehicles and trailers being replaced across the 5 year window. For this particular Access Arrangement period both tippers and the backhoe are due inside the period, their official date being December 2012.



Relevant Standards, Legislation, Regulations

Road vehicles need to comply with the Standards of the Queensland Department of Transport and Main Roads.

2.2 Evaluation of Alternatives

Option 1 – Do nothing

The ‘Do Nothing’ option is not considered a viable alternative, as maintenance vehicles would become unreliable. Several of the vehicles are currently leased and their leases expire during the period.

Option 2 – Maintain at an extended interval.

The interval detailed isn’t excessive for operational vehicles working extensively each year including some off-road activities. Extending the replacement interval would increase the likelihood of vehicles becoming unreliable with increased potential for break-downs in remote areas.

Option 3 – Replace at determined intervals

This option is considered most appropriate balancing replacement costs with reliability and servicing costs.

Option 3 was selected.

2.3 Plan for Efficient Execution

APA Group maximises its vehicle buying power through a centralised Purchasing Department based in Dandenong Victoria. Tender processes are utilised.

3 Estimated Costs

Historical costs

Year	2007/08	2008/09	2009/10	2010/11	2011/12 F
Budget		\$450k	\$434k	\$150k	\$320k
Costs		\$524k	\$398k	\$135k	TBA

Estimated

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Costs	\$541k	\$437k	\$394k	\$437k	\$541k

3.1 Overheads and Capitalisation

Due to the significance of vehicle/plant purchasing a tendering system is operated through a Group Purchasing Department in Melbourne.



4 Justification

4.1 Basis of justification

The work is necessary to maintain the vehicle fleet in an appropriate condition for the duties involved with operating and maintaining the RBP.

The capital expenditure already completed is justified in accordance with 8.16(a) (ii) (C) and the forecasted expenditure is justified in accordance with rule 79 2 (c) (ii).



File APA Group – APT Petroleum Pipelines (Limited)

Subject Conforming Capex justification
(Mainline Valve Replacement)

Ref RBP12-AA-18-F

Purpose

To document the key elements justifying the conforming capex project for capex forecast for the 2012/13 – 2016/17 RBP Access Arrangement revisions.

Rule Requirements

Rule 79 New capital expenditure criteria

(1) Conforming capital expenditure is capital expenditure that conforms with the following criteria:

(a) the capital expenditure must be such as would be incurred by a prudent service provider acting efficiently, in accordance with accepted good industry practice, to achieve the lowest sustainable cost of providing services;

(b) the capital expenditure must be justifiable on a ground stated in subrule (2).

(2) Capital expenditure is justifiable if:

(a) the overall economic value of the expenditure is positive; or

(b) the present value of the expected incremental revenue to be generated as a result of the expenditure exceeds the present value of the capital expenditure; or

(c) the capital expenditure is necessary:

(i) to maintain and improve the safety of services; or

(ii) to maintain the integrity of services; or

(iii) to comply with a regulatory obligation or requirement; or

(iv) to maintain the service provider's capacity to meet levels of demand for services existing at the time the capital expenditure is incurred (as distinct from projected demand that is dependent on an expansion of pipeline capacity); or

(d) the capital expenditure is an aggregate amount divisible into 2 parts, one referable to incremental services and the other referable to a purpose referred to in paragraph (c), and the former is justifiable under paragraph (b) and the latter under paragraph (c).



1 Asset Class

Related to the stay in business capital component of the business.

1.1 Asset Description

Overview and Function

The mainline valves enable the pipeline to be isolated into sections stopping all flow along the pipeline. They are installed with the expectation of them being utilised during emergency situations primarily but also for special planned works where pressure reductions can be facilitated using them. They are manual valves requiring field attendance to operate.

Current Condition and Asset Integrity

There are concerns regarding the capability of the valve to seal gas adequately should it be required and maintenance crews are concerned about closing some valves in case they seize in the closed position.

Failure Experience

There have not been any specific failure of the valves, however as primarily emergency valves they are not routinely tested against full differential pressures, by putting the valve in the fully shut period for extended periods.

2 Capital Expenditure Requirement

2.1 Identification of Need

The valves are critical to the safe operation of the pipeline and over the coming years they require maintenance checks to ensure that they will operate appropriately if needed. In some cases the valve seals may need to be replaced, however there is also the possibility that the valve balls will be found to be scored and require replacement. This CC project is provisional to allow for the replacement of a whole valve assembly.

2.2 Relevant Standards, Legislation, Regulations

AS2885.1

2.3 Evaluation of Alternatives

Option 1 – Do nothing

The 'Do Nothing' option can be adopted short term whilst checks are carried out, but is not considered a viable alternative longer term. There is currently a concern that a valve may not operate appropriately. This however would not create any particular hazard, but would require the next valve upstream (or downstream depending upon the circumstances) to be also operated to completely shut-down a pipeline section. This is undesirable and outside of the design parameters effectively doubling the section size for operational purposes.



Option 2 – Inspect and repair valve seals

A satisfactory process that would require fully shutting in the pipeline to test, when an opportunity occurs. Should the valve seals be defective it is anticipated that new seals can be fitted without removing the valves. Where the valve is defective this process would not be satisfactory.

Option 3 – Inspect, repair and replace valves as necessary.

As an extension to option 2 this allows for a defective valve that can not be repair to be removed from service. The technique would involve isolation by either blowing down a whole pipeline section or by using cut-out techniques to minimise the gas vented. Either solution would require the existing valve to be cut out and a replacement welded in.

Option 3 was selected for the budgetary purpose of the AA..

2.4 Plan for Efficient Execution

APA will continue full maintenance of the valves to ensure that their mechanisms are operable and when suitable supply opportunities exist valves will be tested in the closed position. Where necessary valve seals will be inspected and replaced. Where valves are found to be scored or damaged they will be scheduled for replacement.

Much of the work will be completed under BAU funding however for AA purposes it would be prudent to allow for a single valve replacement. This is a specialised process which would need to be completed by APA specialist crews or TD Williamson crews.

3 Estimated Costs

Estimated costs

Year	2012/13	2013/14	2014/15	2015/16	2016/17
Scheduled	0	0	1	0	0
Estimated			\$300k		

3.1 Overheads and Capitalisation

Due to the complex nature of this project a local project manager will be appointed to develop the planning for the testing work and manage the solution through the delivery phase.

4 Justification

4.1 Basis of justification

The work is necessary to ensure the reliability of emergency equipment and the safety of the public.

The capital expenditure is considered to conform to the requirements of the Access Arrangement under sub-rules 79 2 (c) (i) and (ii).