UNIDEL

INFRASTRUCTURE PROJECT MANAGERS

DAWSON VALLEY PIPELINE

Access Arrangement Review

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Rev	**Description**	**Originator**	**Reviewed**	**Approved**	**Date**

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1.0 EXECUTIVE SUMMARY

Anglo Coal (Anglo) has published the proposed Access Arrangements for the Dawson Valley Pipeline (DVP). Responses have been received from three parties challenging certain aspects of the Access Arrangements. The Australian Energy Regulator (AER) has engaged Unidel to review all correspondence to date from a technical and cost perspective (accordingly, comments contained in this report such as "the Access Arrangements are" shall be interpreted in a technical or costs context only).

The DVP is a 47 km 150 mm ND pipeline operating at a Maximum Allowable Operating Pressure (MAOP) of 14.6 MPag delivering gas to Queensland Nitrates (QNPL) and the Queensland Gas Pipeline (QGP), the latter having an MAOP of 10.2 MPag. Anglo state the capacity is 30 TJ/d in free flow configuration. The inclusions in the DVP for the Access Arrangements appear to be simply the pig launcher at the Receipt Points and metering and pressure control at the Delivery Points.

The Access Arrangements are fairly typical of those published for high pressure gas pipelines in Australia. There are no abnormal constraints in the conditions although they could be said to favour the DVP over the User in some areas such as nominations. The Access Arrangements are based on expected deliveries of 8 TJ/d as outlined by Anglo.

In preparing the Access Arrangements, Anglo had GHD prepare an Initial Capital Base (ICB) for the pipeline. Anglo considered the 150 mm ND pipeline to be the appropriate size on the basis that smaller sizes are not typically installed and it would limit capacity expansion. GHD prepared a scaled estimate (from the construction cost in 1996 to 2006) of $9.169M (Q3 2006). Whilst this approach alone is considered inaccurate over this time period the major costs, line pipe and construction, were verified by vendor budget cost and constructor input respectively.

Anglo developed an operating cost estimate comprising direct costs of $163k/yr and indirect costs (corporate support and overhead) of $488k/yr. This latter cost is one that was strongly challenged in responses from the parties.

Details of the responses are included in the main body of the report. They have been summarised together with Unidel comment in the following table.

Issue Raised	Unidel Comment
Costs are inefficient or excessive	The Anglo replacement cost estimate is if anything understated
Capacity is understated	The capacity if the 150 mm ND pipeline is around 40 TJ/d. Whilst 8 TJ/d could be delivered in a 100 mm ND pipeline the capital and operating costs will not be significantly reduced
Overhead, regulatory management and marketing costs are excessive	It is apparent the cost is high although these costs are not so dependent on pipeline size and length and could be expected to be higher on a relative basis for the DVP. This review has not included any discussion with Anglo to verify the overhead and marketing cost component

The delivery pressure of 10.5 MPag is above QGP MAOP of 10.2 MPag and operating pressure of 8.06 MPag	The design is appropriate The operating pressure is not relevant as the QGP could be operated up to its MAOP at any time by the operator.
Gas HHV will be higher than that assumed by DVP, 35 MJ/m³	The DVP would likely be required to transport any specification gas and needs to be sized accordingly. Use of 35 MJ/m³ HHV is appropriate
There should be an "as available" tariff	This should not be difficult to accommodate
Nominations are one-sided	The nominations appear to be mostly reasonable
Design does not allow user to control and adjust nominations	This may have some validity and should not require excessive costs to modify
No provision for allocation between Users	This may well be the case for the current single user arrangements

Unidel has determined the pipeline capacities for both 100 mm ND and 150 mm ND systems operating at an MAOP of 15.3 MPag to be 15 and 43 TJ/d respectively. There are very limited economies of scale for a smaller diameter in these diameter ranges. Furthermore a number of parties expect the delivery requirements to expand considerably. On this basis it would not appear efficient to build a smaller pipeline.

The GHD capital cost appears to be at the low end of expectations in the current market particularly the approvals and construction costs from that estimate. It should be noted that pipeline construction costs have increased about 80% in the last five years. Unidel believes a more appropriate capital cost for the 150 mm ND pipeline would be $11.3M.

The direct operating costs of $163k/yr used by Anglo are consistent with Unidel expectations. Given that there is no basis for Anglo's corporate overhead and support of $488k/yr in the available information, this cannot be verified. An allocation based on management time and effort, as Anglo claim it has, is not unusual. Should the DVP not be able to continue to defer intelligent pigging by other demonstrable integrity assessment means a recurring cost (likely to be 5-10 year intervals) of $100-150k will be incurred.

2.0 BACKGROUND

Anglo published the Access Arrangements for the DVP in February 2007. Prior to this Anglo had GHD provide a replacement capital cost estimate for the pipeline to support the basis of the costs used in the tariff proposed. The AER has received three submissions in response to the Access Arrangements, these being from Molopo, Westside and AGL. The information provided by the AER relating to the Access Arrangements and responses in listed in Section 15 of this report.

3.0 PURPOSE

In order to assist it in its determination, the AER has requested that Unidel provide an opinion on the technical and cost information provided by Anglo and its advisors and the respondents (collectively referred to as "the parties") regarding the Access Arrangements. It is understood that the Unidel report may be provided to the parties as evidence to support any determination of the AER. Unidel was not required to provide any opinion as to the commercial impact of the capital and operating costs or the expected volumes that could be transported in the DVP.

4.0 SCOPE AND METHODOLOGY

Unidel scope as outlined in its proposal to AER dated 13 March 2007 was:

- Optimum pipeline size based on free flow capacity of 30 TJ/d delivering into the existing QGP at 10.2 MPag
- Review and comment on the capital cost estimate submitted by the applicant
- Review and comment on the operating cost estimate submitted by the applicant
- Preparation of a report including methodology used and key assumptions

The method adopted by Unidel in this review is as follows:

- Review of all documents submitted by AER regrading:
    - Proposed Access Arrangements provided by Anglo Coal
    - Capital costs provided by GHD
    - Responses to the AER regarding the Access Arrangements
- Provide opinion on the documents provided with respect to the design basis, capital costs, operating costs and service to be provided
- Prepare a draft report to AER for review
- Issue a final report that would be available for public and the parties review

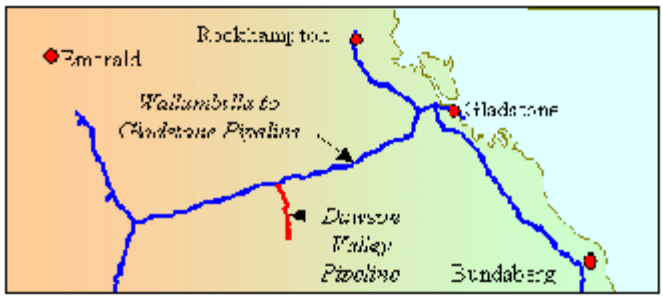
5.0 ASSUMPTIONS

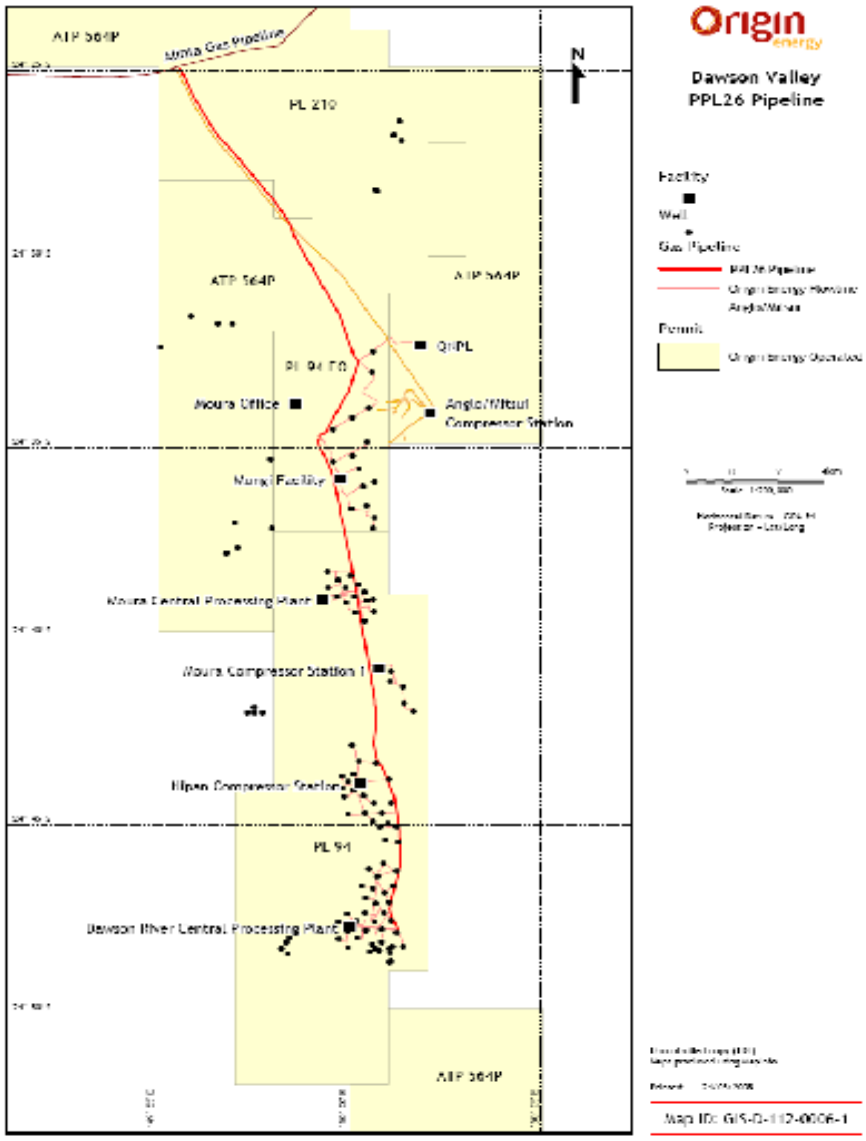
The following assumptions were provided with the Unidel proposal:

- The current pipeline route is assumed to be the optimum route and contains no abnormal construction constraints
- The description of the existing pipeline will be accepted as provided by the AER
- The data provided by AER that in turn was submitted by the applicant is sufficient in detail and quality to undertake the verification process
- There would be no abnormal approvals or construction constraints other than those discussed in the information provided to Unidel
- Pipeline sizing and conceptual design to be optimised based on a single receipt point and single delivery point; and
- Compression will not be utilised

6.0 SUMMARY OF CURRENT PIPELINE

The DVP was constructed in 1996. The location is shown on the following two maps (Sourced from the National Competition Council Issues Paper April 2005 and National Competition Council Final Recommendation August 2005 respectively) and the key design details are set out in the following table.





Source: Oil Company of Australia (Moura) Transmissions Pty Ltd: submission

Note: Alinta Gas Pipeline (top left of page) is another name for the Queensland Gas Pipeline.

Design Parameter	Measurement	Value
Licence	Description	Qld:PPL26
Length	km	47
Diameter ND (OD)	mm	150 (168.3)
Diameter ID – assumed wall thickness of 4.8 mm	mm	158.7
Design stated capacity	TJ/d	30
Anglo delivery constraint	TJ/d	[1]22-24
MAOP	MPag	14.6
Delivery Pressure	MPag	10.5
Receipt Points	Description	[2]Gas to be delivered up to the MAOP at Moura and Dawson plants
Delivery Points	Description	[3]Pipeline includes pressure reduction and metering to QGP and Queensland Nitrates plant (QNPL)

1 It is understood the current field delivery system is not capable of delivering at either the stated capacity or MAOP. This limitation is a constraint in the Anglo field delivery system not the DVP

2 It is not clear how much of the Receipt Points forms part of the pipeline – assumed to be only the pig launcher and shutdown valve

3 It is not clear how much of the Delivery Points forms part of the pipeline – assumed to be all part of the pipeline

The design drawings provided with the GHD report show only one delivery point to the QGP (then known as the State Gas Pipeline) whereas Anglo through Minter Ellison has confirmed there are two Receipt Points and two Delivery Points. It may be that the QNPL delivery point is owned by Queensland Nitrates and it therefore not included in the system or the GHD estimate. In any case whether there is one or two will have negligible impact on the findings in this report.

Even allowing for the clarifications noted in this section the design is relatively simple and as would be expected for the DVP operational requirement.

7.0 REVIEW OF ACCESS ARRANGEMENT OFFERED BY ANGLO

The Access Arrangement published by Anglo has a number of technical statements and assumptions. These are reviewed as set out in the following table.

Statement	Comment
Entitled to recover capital cost improvements at Receipt and Delivery Points	There needs to be clear definition of the Receipt and Delivery Points
System Use Gas (SUG)	There is a provision for DVP to assume up to 1.5% of SUG. The amount should be actual amount used. The 1.5% is excessive for a free flow pipeline which should be negligible
Meter calibration	[1]The statement that the requester of calibration must pay for the validation is only acceptable provided the DVP undertakes routine meter calibration
Interruption of Services	Allows interruption of 100 hours per year for scheduled activities. This appears reasonable although there should be negligible interruption for a free flow pipeline.
Optimised Replacement Cost (ORC)	Anglo state the current design is considered the minimum and so the ORC is the GHD replacement cost estimate of A$9.169M (2006$)
Operating and Maintenance Costs (O&M)	Anglo estimate the O&M to be $163k for 2006/07, this is in line with an industry rule of thumb of 2% of capital.
Overheads and Marketing Costs	Anglo estimates the overhead and marketing cost to be $488k for 2006/07. [2]This is higher than expected
Current and projected throughput	8 TJ/d
Receipt Points	It is not clear what is included in the Receipt Points – assumed to be only the pig launcher per P&ID provided with the GHD report
Delivery Points	It is not clear what is included in the Delivery Points – assumed to be the metering and pressure regulation into the QGP

1 The operating costs includes one meter calibration per year per Minter Ellison fax response of 29 March 2007 item 11

2 Overheads and marketing costs are further discussed in Sections 8.2 and 13 of this report

8.0 REVIEW OF DETAILED BASIS OF ANGLO PROPOSED ARRANGEMENT

8.1 Capital Cost

Anglo had engaged GHD to undertake a cost estimate for a replacement pipeline for the DVP. GHD estimated the replacement cost to be $9.169M (Q3 2006 A$). The following is a critique of the GHD report.

GHD had access to the original actual pipeline costs at the 96% completion stage and the close out report from the project and used this to establish allocation

between the DVP and the Anglo facilities. GHD has established a 2006 capital cost based on the "cost breakdown from the 1996 Work Program". GHD then applied scaling factors as well as input from line pipe and pipe coating providers to determine a 2006 capital cost. GHD also sought construction indicative pricing to validate its cost estimate. The complication from the 1996 work stream breakdown was that it included the now Anglo field facilities and there was little differentiation for Receipt and Delivery Point facilities. Nevertheless GHD has made a sound approach to differentiating the 1996 costs between the DVP and Anglo field facilities.

GHD obtained budget line pipe and pipe coating estimates for 2006 supply. GHD also consulted with its industry contacts regarding construction costs. GHD has determined construction costs at the lower end of a range of $16-18k/in/km. This was qualified as assuming little or no rock and no major crossings requiring directional drilling or similar.

The total project cost estimated by GHD of $9.169M and was described as $32.6k/in/km. GHD went on to compare this with its view of other projects it was familiar with and suggested that costs in the order of $28-29k/in/km. Whilst the inclusion of Receipt and Delivery Point facilities is somewhat unclear, if these facilities exclude field dehydration and compression costs as it is clear they do, these costs are relatively low in the overall project cost.

The general approach and methodology used by GHD was acceptable. However the use of scaling factors over a period of 10 years does not necessarily reflect real changes in costs as other factors can influence costs over this period of time. Given the passage of time it is arguable that the estimate may have been more representative had it been based on a first principles build up. However the possible errors from the use of scaling have been significantly reduced by obtaining budget pricing for the linepipe and having some external review of the construction cost (together accounting for at least 80% of the project cost). On this basis the GHD estimate should fit in the stated estimate accuracy of +/-25%.

It needs to be recognised that pipeline costs have increased by up to 80% over the last five years due to an approximate doubling of the steel cost (world commodity price based) and more than 50% increase in labour costs driven by a labour shortage as a result of the current "resources boom".

In Unidel's opinion the GHD estimate was at the lower end of pipeline costs that might have been expected in late 2006 for a 2007 construction. One area that the estimate appears to be well below real costs is in the area of "approvals". Approvals includes environmental approval, land access both pastoral and Native Title and cultural clearance. These costs have also increased significantly in recent times as a result of more sophisticated stakeholder demands and higher levels of compliance monitoring.

8.2 Operating Cost

Anglo had prepared an operating cost estimate that was included with the GHD capital cost estimate in the information provided. The Anglo estimate is in two parts:

1. Direct costs $163k/yr
2. Indirect Costs $488k/yr

The direct costs are based on a build up of labour and equipment to "maintain the pipeline in accordance with the regulations". This approach is sound. The Anglo direct cost estimate is within industry rules of thumb of 2% of capital invested. Whilst this rule of thumb is not so reliable for a small pipeline such as the DVP it does provide a comparison of around $183k/yr based on the Anglo estimate.

The indirect costs for a pipeline are always difficult to estimate from an external perspective. Anglo has allocated 12% of the Anglo Coal (Dawson Management) Pty Ltd (less non pipeline related costs such as exploration) and 6% of Anglo Coal Australia Pty Ltd specific corporate costs to determine overhead, regulatory and marketing costs. It states (Minter Ellison response on behalf of Anglo) "the basis for this allocation is a best estimate based on the proportion of management time and effort attributable to the operation and management of the DVP" and in its Submission of 13 April 07 they "are all costs which will be incurred in providing the services, i.e. all costs that would be incurred by a company owning and operating the pipeline on a stand alone basis". The principle of allocation is not uncommon however there is no basis to determine the accuracy of this approach on the information provided. The only method that might be more accurate would be allocation based on actual time writing (or time sheets) and coding any costs specifically associated with the DVP. The indirect cost is high relative to the direct costs and this is discussed further in Section 13 of this report.

GHD provided the Operating and Maintenance Manual that had been prepared by the then owner and operator Conoco in 1997. This manual is comprehensive although there are some inconsistencies compared to the design information such as the statement that the MAOP is 14.0 MPag. Three aspects were identified that are important to this report being:

1. There is no reference to the frequency of meter calibration
2. There is reference to intelligent pigging each five years
3. There is no direct reference to operating in accordance with the required standard AS2885 Part 3 or the requirement for risk assessments

Overall the manual is generally satisfactory. The specific need to operate in accordance with AS2885 Part 3 should not add significantly to the operating cost. There is reference to an MAOP check but not the balance of the risk assessment requirements. The risk assessment process is unlikely to add substantially to the operating cost.

9.0 REVIEW OF RESPONSES TO ACCESS ARRANGEMENT

9.1 Molopo

The Molopo response of 9 March 2007 has made strong representations as to the basis of a number of the aspects of the DVP access arrangements. The following is a review of the responses from Molopo for technical and cost aspects.

Issue Raised	Unidel Comment
Costs are inefficient or excessive	The Anglo replacement cost estimate is if anything understated
Capacity is understated	The capacity if the 150 mm ND pipeline is around 40 TJ/d. Whilst 8 TJ/d could be delivered in a 100 mm ND pipeline the capital and operating costs will not be appreciably different from the 150 mm ND pipeline due to domination of construction and non size related costs at lower diameters
Overhead and marketing costs is excessive	It is apparent the cost is high. This review has not included any discussion with Anglo to verify the overhead

	and marketing cost component
Regulatory cost is excessive	It is not clear how Molopo has determined the regulatory costs are excessive as these costs are not specifically determined in the information provided
Capacity underestimated	Molopo states the capacity of the 150 mm ND pipeline is at least 38 TJ/d. This is a valid statement.
The delivery pressure of 10.5 MPag is above the QGP MAOP and operating pressure of 8.06 MPag	The MAOP of the QGP is 10.2 MPag and a 0.3 MPa allowance for pressure drop through the meter and pressure control is valid. The operating pressure is not relevant as the QGP could be operated up to its MAOP at any time by the operator.
Gas HHV will be higher than that assumed by DVP, 35 MJ/m³	Whilst the actual gas supplied by Anglo is 99% methane and will therefore have an HHV of around 37.3 MJ/m³ the owner is likely required to be able to transport any gas that meets the regulations be it to AS4564 (which does not stipulate a HHV) range or Petroleum and Gas Act 2004 that for gas with less than 4% inerts has a GHV range of 35-43 MJ/m³. The DVP design approach is therefore valid for typical CSG HHV.
150mm pipeline is not optimal	Refer section 11 of this report
Regulatory costs are modest and non-recurring	It is unclear how Molopo is assessing the regulatory costs of Anglo as they do not appear to be stated. As discussed in Section 8.2 of this report the costs appear high but there is no way to determine if the Anglo allocation is representative of actual costs. Regulatory costs could be non-recurring or they may be substantially higher for a review and be averaged in the Anglo approach.

9.2 Westside

Westside responded on 21 March 2007 and commented as set out in the following table. Westside made a general comment of concern regarding the strong response from another user and the broad differences or polarity in views. The following is a review of the responses from Westside for technical and cost aspects.

Issue Raised	Unidel Comment
There should be an “as available” tariff set at around the authorised overrun tariff of 120% firm tariff	This requirement should not be difficult to implement for the DVP.
Nominations are heavily one-sided and should reflect that a pipeline operates on a daily basis	Nominations are the method whereby the pipeline owner and/or operator manages the use of the pipeline capacity. The requirements set by DVP do not appear excessive although they do resemble a larger and more complex system. Variations in nominations are “usually” provided by operators for up to 24 hours in advance, not the 48 hours suggested by DVP

Overheads costs are high and should represent costs directly related to the DVP	As discussed in Section 8.2 of this report the costs appear high but based on the available data there is no way to determine if the Anglo allocation is representative of actual costs.

9.3 AGL

AGL responded on 21 March 2007 and highlighted a concern that the Anglo Coal Access Arrangements could impact on further developments in the area serviced by the DVP. The following is a review of the responses from AGL for technical and cost aspects.

Issue Raised	Unidel Comment
Requirement that user is responsible to control and adjust nominations on the pipeline would be difficult for the current design	If there are no flow controls in place as suggested by AGL then it may be difficult for the user to manage its flows into and out of the pipeline
There is no provision for allocation between multiple shippers.	It is likely this statement would be valid for the current design that is understood to be for a single user arrangement. Additional flow control and metering would likely be required for multiple users
Anglo has discretion for determining gas quantity in the absence or failure of metering	AGL suggests this should be by agreement with the user and this is a reasonable request

10.0 ANGLO RESPONSE TO SUBMISSIONS

Anglo responded to the Molopo response on 13 April 2007. The key items that should be commented upon include:

10.1 Capacity has been understated

Unidel has indicated the pipeline capacity in section 11 of this report.

The statement by Anglo that the DVP is constrained by the field delivery design may be correct but the field delivery is not part of the pipeline so the constraint is not part of the pipeline.

10.1.1 ICB is high

Anglo has made a number of comments relating to the size of the pipeline. Actual capacity is discussed in Section 11 of this report. The comment that there will not be a significant saving for diameters lower than 150 mm ND is valid for the reason stated, that being the dominance of construction cost.

Generalised statements such as it is or would be unusual and not commonly adopted to use 100 mm or 80 mm ND pipe are not sustainable.

10.1.2 High Overheads and Marketing Costs

Anglo has defended its overheads and marketing costs on the basis they are incurred costs and they are partly due to lack of economies of scale for this small short pipeline. This latter statement would appear reasonable. There is no way to verify the validity of the Anglo claim on the data provided.

11.0 PIPELINE CAPACITY

Pipeline capacity has been determined on a steady state basis for a number of pipeline options based on the following assumptions.

- Length 47 km based on current alignment
- Gas HHV of 35 MJ/m³ assuming this is the lowest acceptable for entry into the QGP
- MAOP of 15.3 MPag with operation at 15.2 MPag
- Delivery pressure to the Delivery Point of 10.5 MPag to allow entry into the QGP at 10.2 MPag.
- Average ground temperature of 25ºC
- Pipe roughness of 25 µm (microns)
- No change in elevation from Receipt to Delivery Points
- SG 0.6

Pipe Diameter ID - mm	Nominal Diam ND (OD) mm	Nominal Capacity TJ/d	HHV MJ/m^3	Comment
138.5	150 (168.3)	30	35	Size for stated maximum capacity
158.7	150 (168.3)	43	35	[2]Capacity 150 mm ND pipeline
158.7	150 (168.3)	46	37.3	Capacity 150 mm ND pipeline
108.3	100 (114.3)	15	35	[1] [2]Capacity 100 mm ND pipeline
80.9	80 (88.9)	7	35	[1]Capacity 80 mm ND pipeline

a. Wall thickness maintained at 4.0 mm for construction purposes when it would be less for design pressure containment (2.5 mm for 100 mm ND and 2.0 mm for 80 mm ND)

b. If the current MAOP (14.6 MPag) is used the capacity reduces from 43 TJ/d to 40 TJ/d for 150 mm ND pipeline and from 15 TJ/d to 14 TJ/d for 100 mm ND pipeline

Clearly the 8 TJ/d could be delivery comfortably in a 100 mm ND pipeline. It may even be possible to deliver in an 80 mm ND pipeline with low roughness or lower wall

thickness. There is no technical reason why a 100 mm ND pipeline could not be constructed for the service and it would have upside of almost 100% throughput increase from 8 to 15 TJ/d.

Given that Molopo is predicting it will have a need for transport of 10 PJ/yr (27 TJ/d) of gas within five years there would be little sense in developing a pipeline smaller than 150 mm ND. If a 100 mm ND pipeline was built at say 90% of the cost of a 150 mm ND pipeline and had to be looped at a later date at say 90% of the initial cost the twin 100 mm system would have a cost of around 1.7 times the 150 mm ND pipeline.

Intermediate compression is not an option for this short pipeline.

A higher MAOP 100 mm ND pipeline might be technically feasible but there are no gas transmission pipelines in Australia operating above 15.3 MPag. It would also require redesign of the field delivery systems at a considerably high cost.

12.0 CAPITAL COST

Unidel believes the GHD report possibly understates the cost of the pipeline for two main reasons. Firstly the construction cost of $16k/in/km is lower than expected and a cost of around $20/in/km may be more representative of current costs. Secondly there is minimal provision for approvals costs.

The reason for such low approval costs is not immediately apparent. One reason maybe that the pipeline was developed in conjunction with the overall gas project and the other parts of the gas project absorbed the approval costs. There are five fundamental components of approvals being:

- Access to land with land users (pastoralists most likely in this region)
- Grant of access to land subject to Native Title claims (usually by entering into an Indigenous Land Use Agreement)
- Cultural heritage survey and agreement with traditional owners
- Environment assessment and approval
- Grant of the pipeline licence upon completion of the above activities

For this review the approval costs have not been evaluated as their needs to be a fundamental understanding of the pipeline route and constraints in order to estimate these costs. However it is quite possible that approvals and approval compliance costs alone are likely to be in the range $0.5-1M, with it being unlikely they would be less than $0.5M, particularly for stand alone pipeline approvals.

As a first pass Unidel would expect an overall cost of around $40k/in/km with a range of say $30k/in/km to $50k/in/km. If there are complex crossings of rivers and or rail and road the costs would be higher. At $40k/in/km the cost would be $11.3M for the 150 mm ND pipeline.

A 100 mm ND pipeline cost would have similar construction costs as the only saving will be some welding time and lower pipe freight costs. Pipe costs would reduce by around 25%. Using the GHD combined pipe and coating cost of $2.3M for 150 mm ND pipe the reduction would be around $0.6M. The total reduction from the 150 mm ND pipeline to 100 mm ND pipeline is unlikely to exceed $1M.

13.0 OPERATIONS

There are three broadly different approaches to operations that can be adopted being:

1. Stand alone operation with a dedicated operations team
2. Operation contracted to a third party where that third party would be operating it incrementally to other assets (Alinta is a likely opportunity for the DVP)
3. Incremental operation for DVP from other base assets.

A high level estimate by Unidel suggests operating costs would be as follows:

1. Stand alone $417k/yr
2. Third party $306k/yr
3. Incremental $216k/yr

These operating costs do not include corporate overhead and support or any SUG. SUG should be negligible as there is only possibly one extremely small gas use for Receipt and Delivery Point instrumentation and losses would be limited to a very occasional pig launcher or vessel venting requirement, again negligible.

As has been stated in this report it is difficult to gauge the cost of corporate overhead including marketing and regulatory management. For larger pipeline systems the corporate costs is usually less than the direct operating costs. In the case of the DVP there are no economies of scale and a higher percentage might be expected due to these costs not being dependent on length or size.

The cost to operate the DVP on a 2% of capital as a rule of thumb would be $226k/yr based on the $11.3M capital. This rule of thumb has remained valid with the large increase in pipeline costs as, for example, insurance is proportional to pipeline cost, there have been very high fuel cost increases, materials and spares have increased similar to steel costs and labour costs have increased significantly. Again this excludes corporate costs and SUG.

It is extremely critical that the need to operate the DVP in full compliance with AS2885 Part 3 is recognised. This is based around management to protect the public and to prolong the life of the asset.

14.0 INTELLIGENT PIGGING

The documentation confirms that the pipeline has not been inspected with an intelligent pig to date. This operation is to determine where there in loss of wall thickness from corrosion. Oil Company of Australia (OCA) has reported that clause 8.3 of the licence requires that “internal inspection using such a device or other method of inspection as approved by the State Mining Engineer shall be carried out within five years ….”. OCA had sought exemption from the regulator for the need to pig on the fifth anniversary and to defer and reassess the requirement until 2006. There has not been a formal acceptance of this approach and there is no evidence of the activity carried out in 2006 to support further deferral. There is no such pigging requirement under the Petroleum and Gas (Production and Safety) Regulation 2004 (Chapter 5 Regulation 80). Intelligent pigging is only mandated for strategic pipelines and the DVP is not identified as strategic under the Act/Regulations. For the DVP the Regulations require that integrity be managed as identified in AS2885 Part 3 (Section 5.3) which requires an integrity management plan but not necessarily intelligent pigging as part of that plan. This is not to say that an integrity risk assessment might not identify the need for such pigging at some time in the future.

The cost of pigging for the DVP will be dominated by establishment and mobilisation costs and the rule of thumb estimate of $1500-2000/km would not apply. The cost has not been estimated but could be expected to be in the range of $100-150k with the lower cost applying if the operation was co-ordinated with the same activity for another pipeline(s) in Queensland.

It must be noted that from the GHD drawings provided it appears that there may not be pig launching or receival equipment installed on the DVP. If this is the case an allowance of circa $150-200k would need to be included in upgrading of the facilities. This cost is included in the ICB estimate.

15.0 DOCUMENTS REVIEWED

The documents reviewed for this review are listed below. Copies have not been included with the report; rather remain on the AER file.

Source Company	Document Name	Date
Anglo Coal	Access Arrangement for the Dawson Valley Pipeline	5 February 2007
Anglo Coal	Access Arrangement Information Dawson Valley Pipeline	5 February 2007
Anglo Coal	Confidential Supporting Information	5 February 2007
GHD	Report for Dawson Valley Pipeline Cost Estimate	October 2006
Molopo	Dawson Valley Pipeline – Proposed Access Arrangement	9 March 2007
Westside	Dawson Valley Pipeline – proposed access arrangement	21 March 2007
AGL	Dawson Valley Pipeline – proposed access arrangement	19 March 2007
Minter Ellison	Questions of 9 March 2007	29 March 2007
Minter Ellison	Response to questions in relation to the proposed Access Arrangement for the Dawson Valley Pipeline	16 March 2007
Molopo	No Title – Addition information in form of responses to AER	27 March 2007
Anglo Coal	Submission	13 April 2007
Origin	ASX Release – Origin sells its Moura CSG interests for $22 million	7 September 2005
Oil Company of Australia	Pipeline Licence 26, Clause 8.3	27 November 2003

16.0 NOMENCLATURE

AER	- Australian Energy Regulator
Anglo	- Anglo Coal
AS 2885	- Pipelines Gas and Liquid Petroleum Part 1 – 2007 – Design and Construction Part 2 – 2002 – Welding Part 3 – 2001 – Operations Part 5 – 2002 – Field Pressure Testing
AS 4564	- Specification for General Purpose Natural Gas - 2005
ºC	- Celsius temperature
CSG	- Coal Seam Gas
DVP	- Dawson Valley Pipeline
HHV	- Higher Heating Value
ICB	- Initial Capital Base
ID	- Internal Diameter
km	- kilometre
kPa(g)	- kilopascal pressure (guage)
MAOP	- Maximum Allowable Operating Pressure
MDQ	- Maximum Daily Quantity (TJ/d)
MHQ	- Maximum Hourly Quantity (TJ/hr)
MJ/m³	- Megajoule per standard cubic metre
mm	- millimetre
MPa(g)	- Megapascal (guage)
ND, DN	- Nominal diameter
OCA	- Oil Company of Australia
OD	- Outside Diameter
PJ/yr	- Petajoule per Year
QGP	- Queensland Gas Pipeline
QNPL	- Queensland Nitrates
SUG	- System Use Gas
TJ/d	- Terajoule per day
Unidel	- Unidel Group Pty Ltd
yr	- year
$, $k, $M	- Australian dollars Q2 2007, $ thousand, $ million
$k/in/km	- thousands of $ per inch in diameter per km in length