



***Report on Dawson Valley Pipeline Access
Arrangement and Access Arrangement
Information***

by

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Introduction

Ross Calvert Consulting Pty Ltd has been requested by the Australian Energy Regulator to provide an advisory report to assist in the assessment of the Dawson Valley Pipeline Access Arrangement that was lodged with the regulator on 5 February 2007. Details of the nature of the advice sought are provided in Appendix 1.

Non Tariff Elements

Overruns and Variances

An *overrun* is defined as occurring if the delivery or withdrawal of natural gas by the user at a delivery point exceeds the maximum hourly quantity (MHQ) in any hour or the maximum daily quantity (MDQ) on any day.

Overruns may be *authorised* or *unauthorised*. A user may nominate a quantity which exceeds MDQ in which case Anglo Coal will confirm to the user whether all or part of the user's nominated overrun is accepted. If accepted, the overrun is authorised. If not accepted, it is unauthorised.

If Anglo Coal agrees to an authorised overrun, the user may be required to pay an authorised overrun charge amounting to the authorised overrun quantity multiplied by the authorised overrun rate which is 120 percent of the reference tariff i.e. \$1.2 x 0.447 per GJ of MDQ or \$0.5364 per GJ including GST.

A *variance* is defined as occurring if the quantity of natural gas

- delivered to the user at a delivery point during a day is different from the nomination for that delivery point; or
- received from the user at a receipt point during a day is different from the nomination for that receipt point

by more than 10 percent of the MDQ for the delivery or receipt point.

If a daily variance exceeds the 10 percent tolerance limit on more than

- 4 days in a particular month; or
- 24 days in contract year,

Anglo Coal may require the user to pay a daily variance charge amounting to the daily variance quantity multiplied by the daily variance rate. The daily variance rate is 20 percent of the aggregate reference tariff payable by the user for all natural gas on the day on which the variance occurred. i.e. \$0.2 x 0.447 per GJ of MDQ or \$0.0894 per GJ of MDQ, including GST.

The definitions are in accordance with normal gas transmission industry practice. The overrun charge is at the lower end of industry practice. The daily variance charge is similar to that charged for a number of the pipelines owned by the APA Group which have had access arrangement reviews in recent years. It could be argued that the circumstances of the DVP are such that minor overruns or variances should be overlooked as the impact on other users is likely to be negligible. However, the current relatively low level of pipeline utilisation would not necessarily continue throughout the proposed access arrangement period of 8 years. Accordingly the proposed overrun and variance charges are considered to be reasonable in accordance with the gas code.

Trading Policy

As required by the gas code, the Access Arrangement permits a user to make a *bare transfer* of capacity provided the user notifies Anglo Coal of the identity of the transferee and the portion of contracted capacity that is to be transferred.

The trading policy also permits transfer or assignment of all or part of a user's capacity other than by way of bare transfer. The proviso is that the service provider will only withhold consent to such transfer or assignment on reasonable commercial or technical grounds. Consent may be subject to conditions which are reasonable on commercial or technical grounds. Anglo has indicated that while it is not possible to indicate all reasonable technical or commercial grounds upon which a request may be rejected, it gave the following as examples of such grounds:

- a failure of a transferee to satisfy Anglo of its creditworthiness; and
- if acceptance of the request would have a material adverse impact upon Anglo's revenue stream.¹

The grounds cited are considered reasonable and it is recommended that Anglo be required to amend the wording of the trading policy to include the clarifying examples.

A further provision in the trading policy relates to changing a user's receipt or delivery point with the prior written consent of Anglo Coal. The Access Arrangement states that consent will only be withheld on reasonable commercial or technical grounds. Again, consent may be subject to conditions which are reasonable on commercial or technical grounds. In this instance Anglo cited the following as reasonable commercial or technical grounds for rejection of a request:

- if acceptance of the request would have a material adverse impact upon Anglo's revenue stream;
- where a reduction in the amount of the service provided to the original delivery point will not result in a corresponding increase in Anglo's ability to provide that service to the alternative delivery point; and
- where the requested receipt or delivery points do not have sufficient available capacity to enable the change to be completed.²

¹ Letter from Minter Ellison dated 29 March 2007.

² Letter from Minter Ellison dated 29 March 2007.

The first two grounds cited are considered reasonable and it is recommended that Anglo be required to amend the wording of the trading policy to include the clarifying examples. However, in the event that insufficient capacity at a receipt or delivery point is offered as a reason for rejection of a request but the prospective user is willing to pay for additional capacity and it is technically feasible to provide that capacity, the third ground is not considered reasonable. It is recommended that Anglo be required to amend the trading policy to reflect the views set out in this paragraph.

Queuing Policy

The Access Arrangement states that access requests will have priority determined by the order in which they are received. Anglo Coal undertakes to advise a prospective user of its place in the queue:

- at the time its request is placed in the queue;
- if its place in the queue changes; and
- at any time upon request by the prospective user.

Anglo Coal advises that access requests may be dealt with out of order provided that prospective users ahead in the queue are not ultimately disadvantaged. Circumstances can be envisaged where this might occur. For example, a request could entail the building of a new receipt or delivery point while a newer request could involve existing receipt and delivery points. In this situation it would not be unreasonable for the latter request to be translated into commercial effect prior to the former. In another case one party in the queue may conclude commercial negotiations more quickly than another. In this situation it would be reasonable for a new user, B, to commence a gas haulage provided the party ahead of it in the queue, A, were not disadvantaged (for example by losing access to capacity that would have been available prior to B's new haulage contract. In both sets of circumstances the proposed policy is considered reasonable since the qualification applied is that the party ahead in the queue should not be ultimately disadvantaged.

Anglo Coal further advises that an access request will only be rejected on reasonable commercial or technical grounds and has cited the following as reasons why an access request may be rejected:

- a failure of the prospective user to satisfy Anglo of its creditworthiness;
- lack of available spare capacity on the DVP;
- the path of transportation services sought under the access request cannot be provided by Anglo given the configuration of the DVP at the time that the access request is made; and
- if acceptance of the request would have a material adverse impact upon Anglo's revenue stream.³

Each of the grounds cited as examples is reasonable but if a prospective user is willing to pay for additional capacity and it is feasible to provide that capacity, it is reasonable that

³ Letter from Minter Ellison dated 29 March 2007.

Anglo should provide access. Accordingly, it is recommended that Anglo be required to amend its queuing policy to reflect the situation described in this paragraph.

The gas code requires that the access arrangement set out sufficient detail for the user to understand how the queuing policy would work. In this case there is little detail and it is considered that the requirement of the code has not been met. Essentially the Anglo Mitsui queuing policy restates the requirements of the code. Details have been sought from the service provider about the information requirements it considers necessary for an access inquiry to translate into an official access request. The policy should also state the timeframes under which the various actions under the queuing policy would occur. For example, the service provider could undertake to respond to an access request within say, 14 days. If engineering investigation and costing is required to satisfy the access request, the service provider could undertake to advise an indicative cost and timeframe within say, 30 days.

Service Policy

WestSide included in its submission a desire to have an ‘as available’ service⁴. Anglo Coal has not specifically provided for an ‘as available’ service but has included provision for negotiated service. In this circumstance no recommendation is made for inclusion of an ‘as available’ service. It is noted that Molopo previously had an ‘as available’ service and that service provided it with flexibility at a time when the gas production rate from its facility was uncertain.⁵

Escalation Formula

AGL Sales (Queensland) Pty Limited in its submission⁶ queried the CPI formula adopted for escalation of the reference tariff in section 4.1 of the Access Arrangement.

The formula is:

$$RT_n = RT_{n-1} \times \{1 + [(CPI_{n-1} - CPI_{n-2}) / CPI_{n-2}] \times (1 - X)\}$$
 where

CPI means the Consumer Price Index (All Groups – Weighted Average Eight Capital Cities) published quarterly by the Australian Bureau of Statistics.

CPI_{n-1} means the value of the CPI for the March quarter in year n-1.

CPI_{n-2} means the value of the CPI for the March quarter in year n-2.

RT_n means the Reference Tariff in year n.

RT_{n-1} means the Reference Tariff in year n-1.

X means 0.00.

⁴ Dated 21 March 2007.

⁵ Letter from Molopo dated 27 March 2007.

⁶ Dated 19 March 2007.

The formula proposed in the Access Arrangement is considered to be appropriate.

Terms and Conditions

System Use gas

Under clause 3.1 of the standard terms and conditions the user is required to provide, at no cost to Anglo Coal, *system use gas* necessary for Anglo Coal to provide the contracted service. Such gas may be an amount of up to 1.5 percent of the user's MDQ, as notified to the user from time to time.

A quantity of 1.5% seems unlikely to be required while the pipeline is in free-flow operation but could be necessary if compression is required. Compressor fuel gas is by far the dominant category of system use gas where compression is used. It could be argued that 1.5 percent is unnecessarily high for free flow operation. Indeed, 0.5 percent would seem more than adequate. It may be desirable to require the service provider to reduce the specified upper limit to say, 0.5 percent for users who contract free flow capacity as these users should not be required to provide compressor fuel. It is conceivable that compression could be required during the access arrangement period if the pipeline utilisation increases significantly. The service provider may wish to specify an upper limit of 1.5 percent for system use gas where compression is required.

Clause 3.1 (b) states that system use gas provided by a user is to be owned by Anglo Coal *for the operation of the DVP* and will not be part of the user's nominations. This suggests that the intentions of Anglo Coal in relation to system use gas are reasonable. While some additional wording may provide comfort to potential users, the terms and conditions relating to system use gas are considered to be satisfactory as they stand.

Delivery point pressure

Clause 10.2 of the standard terms and conditions relates to *delivery point pressure* and states that Anglo Coal will deliver natural gas to the user at the delivery point at a sufficient pressure for the natural gas to exit from the DVP at the delivery point. (Note that there appears to be an error in the Access Arrangement in section 10.2 on page 27 where a reference to "receipt point" appears to mean "delivery point".) This condition takes account of the fact that the operating pressure at the delivery point into the Queensland Gas Pipeline (QGP) is not fixed. The QGP has a maximum allowable operating pressure of 10.2 MPa but the pressure at the interconnection with the DVP will vary according to flow conditions in the QGP. The delivery point pressure from the DVP will need to exceed the pressure at that point in the QGP for flow to occur. Alinta states on its website that the typical operating pressure at the DVP connection point is 8.058 MPa. In calculating the firm capacity of the DVP it is prudent to assume a 'worst case scenario' wherein the pressure in the QGP at the connection would be 10.2 MPa, albeit that such a circumstance might be unlikely. However, the pressure in the QGP is outside the control of Anglo Coal and it is reasonable for the company to assume an exit pressure from the DVP of 10.2 MPa plus a margin for the pressure drop through the meter station at the connection point (say 10.4 MPa).

Hence, while clause 10.2 may appear vague, it is adequate in the circumstances for delivery into the Queensland Gas Pipeline. For delivery directly into a user's premises

such as a power station, contractual arrangements would normally specify a minimum delivery pressure. This would not be inconsistent with the standard terms and conditions. Hence no recommendation is made for alteration of clause 10.2.

Gas Quality

Clause 9.1 of the terms and conditions requires that gas received by Anglo Coal from a user must comply with the specifications set out in AS 4564 (*'Specification for general purpose natural gas'*) (2005) as required under the *Petroleum and Gas (Production and Safety) Act 2004*. However s620 of that Act empowers the Queensland Government to vary the AS 4564 specification. The Queensland Government has previously specified a limit for the concentration of carbon dioxide of 3% by volume even though AS 4564 is silent on such a limit because the limit on carbon dioxide content is achieved implicitly via the limits on inerts content and Wobbe Index. The service provider has little choice but to comply with Queensland law but the additional restriction is noteworthy because it has the potential to impose additional costs on gas producers.

Anglo Coal has advised that it does not anticipate any gas quality issues provided users comply with the gas specification.⁷

Operational Flow Orders

Clause 3.5(a) of the terms and conditions states that "At least two (2) hours prior to the commencement of an Operational Flow Order, Anglo Coal shall provide a written copy of the Operational Flow Order to the User." Anglo initially submitted that notice of at least two hours was reasonable, given the nature of the circumstances in which an Operational Flow Order is issued.⁸ The company subsequently advised that it would be willing to amend the notice period to "within a reasonable time prior to the effective commencement of an Operational Flow Order based on the circumstances in which the Operational Flow Order is issued."⁹ To allow for circumstances where communication with a third party user might be delayed, it is recommended that Anglo's revised wording for this clause be accepted.

Clause 16(e) confers on Anglo Coal the authority to interrupt supply "in the case of the occurrence of an event or circumstance of Force Majeure or a failure by the User to comply with an Operational Flow Order." Anglo has subsequently agreed to amend clause 16(e) to the following:

"in the case of the occurrence of an event or circumstance of Force Majeure or a failure by the User to comply with an Operational Flow Order in circumstances where Anglo Coal considers that it is necessary to ensure the integrity of the Service or the safety or integrity of the DVP."

It is recommended that Anglo's suggested revised wording of clause 16(e) be accepted.

⁷ Letter from Minter Ellison dated 29 March 2007.

⁸ Letter from Minter Ellison dated 29 March 2007.

⁹ Letter from Minter Ellison dated 26 April 2007.

Nominations

Clause 4.1(a) of the terms and conditions requires users to provide indicative nominations for the following month 10 days in advance. Anglo has submitted that a ten day period for nominations is consistent with industry standards.¹⁰ WestSide and Sunshine gas have submitted that monthly and weekly nominations are useful for planning purposes but in practice a pipeline operates on daily scheduling and nominations¹¹. As these nominations are indicative only, it is recommended that Anglo's proposal regarding indicative nominations for the following month be accepted.

Clause 4.1(b) of the terms and conditions requires users to provide by noon each Friday nominations for each day of the following week, commencing at 8am on the following Monday. If the notice period for variation of nominations is reduced to 24 hours, it is recommended that Anglo's proposal regarding nominations for the following week be accepted.

Clause 4.3 of the terms and conditions requires users to give Anglo not less than 48 hours' notice of and variation to its nomination for a particular day.

Anglo submitted that notice of 48 hours is reasonable for variation of nominations¹². AGL submitted that the proposed 48 hours' notice is substantially longer than the industry 'norm' of 24 hours¹³. This period would be more consistent with industry standards. In a response to AGL's submission¹⁴ Anglo advised that it would be willing to reduce the notice period for variations to 24 hours in advance of the commencement of Anglo's 'gas day' at 8 am. It is recommended that Anglo's revised notice period of 24 hours be accepted.

Overruns and Allocations

Noting that the DVP does not have flow controls at the interconnection of the DVP and the QGP, AGL expressed concern that users may be charged for overruns in circumstances where the user is not best placed to manage flows in the pipe¹⁵. AGL also suggested that allocations between multiple users may be problematic¹⁶.

Because Anglo Mitsui is a user of the DVP, it seems most unlikely that it would operate the DVP in a manner likely to disadvantage users, notwithstanding that there is no flow control at the interconnection of the DVP and QGP. Allocations between multiple users need not be problematic. It is recommended that Anglo be required to add to its terms and conditions a provision that allocations between multiple users will be determined by an agreed methodology.

¹⁰ Letter from Minter Ellison dated 29 March 2007.

¹¹ Letters to ACCC dated 21 March 2007.

¹² Letter from Minter Ellison dated 29 March 2007.

¹³ Letter to ACCC dated 19 March 2007.

¹⁴ Sent via email dated 20 April 2007.

¹⁵ Letter to ACCC dated 19 March 2007.

¹⁶ Letter to ACCC dated 19 March 2007.

Any third party user has the option to provide a control valve at a point upstream of a receipt point on the pipeline in order to control the rate at which its own gas flows into the DVP.

Alternative Receipt Points and Delivery Points

In clause 6(b)(iii) of the terms and conditions Anglo Coal indicates that it will receive or deliver natural gas at an alternative receipt or delivery point provided that the user pays the full cost of constructing any new facilities required for it to do so. In clause 6(b)(iv) Anglo also requires the user to pay the operating and maintenance costs of such new facilities. Anglo has indicated that while it considers that construction of capital improvements of inlet and outlet facilities is unlikely during the access arrangement period, it is willing to negotiate terms for payment of capital improvements and has suggested that monthly payments may be appropriate¹⁷. It is recommended that Anglo be required to amend the terms and conditions to indicate that it will negotiate terms for payment of the costs of alternative receipt and delivery points and that monthly payments may be appropriate.

Witness Testing of Metering Facilities

In clause 11.2 of the terms and conditions provision is made for inspection and auditing of metering records at least once every contract year. Under clause 11.2 (b) each party bears its own costs of such inspection or audit. Anglo considers that a witness testing interval of 12 months for metering facilities is reasonable and consistent with industry standards but would accept a shorter testing period where the user is willing to fund the additional testing¹⁸. It is considered that quarterly witness testing would be more reasonable because the effort required to make any necessary record and billing adjustments will be considerably less if the testing interval is quarterly rather than annual. Anglo should be required to amend its terms and conditions to provide for quarterly witness testing if a prospective user requests it.

Maximum Allowable Operating Pressure (MAOP)

In clause 10.1 of its Terms and Conditions Anglo has specified (reasonably) that a user shall not supply gas at a receipt point at a pressure greater than the maximum allowable operating pressure for the DVP specified in the Operations Manual. Anglo advises that the MAOP may vary in the future (although this would involve capital expenditure)¹⁹. This is because although the pipeline itself has a MAOP of 14.6 MPa, certain other constraints currently exist. Anglo Coal has advised that the MAOP of the pipeline is currently limited to 11.5-12 MPag with the constraints being the 12,750 kPag design pressure of the discharge pulsation bottles and the design pressure of the discharge coolers on the existing compressors at both the Dawson and Moura compressor stations²⁰. Not exceeding 90 percent of the design pressure necessitates operating not higher than 11.5-12 MPag. In order to operate the DVP at 14.6 MPag, it would be necessary to upgrade the compressors and dehydration units and associated piping. Anglo has advised that the cost

¹⁷ Letter from Minter Ellison dated 29 March 2007.

¹⁸ Letter from Minter Ellison dated 29 March 2007.

¹⁹ Verbal communication dated 11 April 2007.

²⁰ Letter to ACCC from Minter Ellison dated 19 April 2007.

of upgrading to allow the DVP to operate at 14.6 MPag is estimated by GHD to be approximately \$9 million for the Dawson compressor station and \$5.5 million for the Moura compressor station²¹.

To assist prospective users it is recommended that the terms and conditions be expanded to describe the current MAOP and what modifications would be involved in order to upgrade the MAOP of ancillary equipment so that the pipeline could be operated at 14.6 MPag.

Optimised Replacement Cost

Review of GHD Report

To determine an optimised replacement cost for use in calculating the reference tariff for the DVP the service provider commissioned a report by engineers GHD. In producing the *Report for Dawson Valley Pipeline Cost Estimate*, GHD used the cost breakdown from the 1996 works program for the Dawson Valley facilities and applied multipliers to account for the subsequent movement in material and construction costs as well as some vendor pricing and its recent pipeline project design and cost estimating experience. The estimated cost was \$9.169 million in third quarter 2006 dollars. GHD's stated accuracy for the report is +/- 25%, meaning that the range is \$6.9 to \$11.5 million.

Because data for some construction items included facilities other than the pipeline, allowance was made by GHD to include only the relevant portion of costs for the pipeline. For example, 20 percent of total project civil works was deemed to be associated with the pipeline.

Inputs and Assumptions

The following table lists the key pipeline parameters and details assumed by GHD in preparing an estimate of the ORC:

Pipeline Diameter	168.3 mm OD
Pipeline Length	47 km
Pipe Grade	API 5L X65
Pipe Coating	HDPE ("Yellowjacket") 1mm thickness
Pipeline Line Pressure	9.5 MPa
Pipe wall Thickness	4.8 mm
Facilities	Meter station at inlet to Queensland Gas Pipeline Scraper station halves at inlet and outlet

GHD assumed a unit construction cost of \$16,000 per inch km (\$630 per km mm) or around \$106 per metre. This is 8% greater than the unit cost of \$98 per metre used by Sleeman Consulting in 2006 in estimating the small 168.3 mm component of the Roma to

²¹ Letter to ACCC from Minter Ellison dated 19 April 2007.

Brisbane Pipeline²². It is considered to be within a reasonable range, also having regard to likely cost escalation during the intervening period. The service provider confirmed GHD's assumption that the pipeline route comprised relatively easy terrain with little rock²³. One single line rail crossing was involved and all road and water crossings were simple crossings.

Budget prices for pipe, coating and pipe delivery were obtained by GHD from suppliers. Valve costs were estimated by GHD based on a quoted cost per valve. This item estimate is considered reasonable although it should be noted that such prices are quite volatile due to international supply and demand factors and exchange rates.

Separate budget prices were sought by the author for pipe, coating and delivery from suppliers. The sub-total budget price for coated and delivered pipe in the GHD estimate compares reasonably with the sub-total budget price for pipe of approximately \$2.5million obtained by the author some months later.

Rough estimates for other major items include the following:

Engineering	\$500,000
Meter station	\$500,000
Right-of-way acquisition	\$250,000.

It is noted that the GHD report did not include any estimate for environmental impact assessment which would be a significant item and unlikely to cost less than \$200,000, even for such a small pipeline.

Adding these four major items to the estimates for pipe (approximately \$2.5 M) and construction (approximately \$4.6 M) yields a total of approximately \$8.5 M. The aggregate of cost estimates for various smaller items also included in the GHD estimate is considered reasonable. Accordingly the GHD estimate of \$9.169 M is considered reasonable.

Optimisation

The Access Arrangement Information states (p5) that "the current configuration of the DVP is considered the minimum design for transmission pipeline and as such no optimisation has been undertaken". The pipeline is 168.3 mm outside diameter (nominal 6 inch) and is not internally lined.

Given the considerable increased capacity of a 168.3mm pipeline relative to the next lower standard diameter (114.3 mm) and the minimal incremental cost of materials and construction, gas industry practice has generally favoured 168.3mm as the minimum practical diameter for a transmission pipeline. The benefits of the increased capacity are generally considered to outweigh the minimal (if any) increase in cost. If a pipeline were built with too small a diameter and demand grew at a faster rate than anticipated, compression or looping would be required to boost capacity. Looping is likely to be a more attractive option than compression for a pipeline with the characteristics of the DVP.

²² *Optimised Replacement Cost of Roma Brisbane Pipeline*, Sleeman Consulting, 24 June 2006, Attachment 1.

²³ GHD report, section 4.2.2, p8.

However looping is much more expensive than building at the outset in a slightly larger diameter.

Molopo suggested in a submission that the optimised pipeline should have a diameter of 114.3mm or 88.9mm²⁴. Pipelines in these diameters tend to be built only in much shorter lengths than 47 km. Moreover, while there would be some minor savings (in pipe and valve costs) for the smaller diameters over a 168.3mm pipeline, there would be little, if any, overall saving in construction cost.

The wall thickness of 4.8mm is around the minimum preferred for reasons of weldability and penetration resistance. The steel grade, X65, exceeds the minimum requirement. However use of X65 allows the pipeline to have a greater maximum allowable operating pressure (MAOP) than it would if it were a lower grade such as X56 or X42.

Accordingly the pipeline configuration proposed by the service provider for the ORC is considered appropriate.

The route of the pipeline (PPL 26) is depicted in Appendices 2A and 2B. The DVP runs from the Dawson River gas treatment plant located between the towns of Theodore and Moura to link with the Queensland Gas Pipeline approximately 20 km north of Moura. The 47 km route is west of the Malakoff Range and traverses the valley of the Dawson River in a northerly direction. From a point just north of Moura the DVP runs approximately parallel to the other gas pipeline (PPL 61) owned by Anglo-Mitsui.

From a desktop study it is concluded that the existing route is appropriate for the purpose of determining an optimised replacement cost.

Pipeline Life

The pipeline, constructed in 1996, is coated in high density polyethylene (known as “yellowjacket”) to protect it from external corrosion. Joint coating is by means of polyethylene sleeves and is not internally lined. In addition, an impressed current cathodic protection system is used to protect against corrosion.

Anglo has advised that intelligent pigging of the pipeline has not been carried out since the pipeline’s commissioning²⁵. Hence, comprehensive data on the integrity of the pipeline is not available. A comprehensive report on cathodic protection of the DVP was provided by Anglo²⁶.

Based on the design of the pipeline and the operational procedures described in the Conoco Operating and Maintenance Manual²⁷ it is concluded that the 60 year life proposed by Anglo is reasonable. A positive report on pipeline integrity based on a recent intelligent pig run would validate such a conclusion. Information in the report on cathodic

²⁴ Letter to ACCC dated 9 March 2007.

²⁵ Letter from Minter Ellison dated 19 April 2007.

²⁶ Dated August 2005, confidential.

²⁷ Confidential material provided to ACCC – revision 1 dated 27 February 1997.

protection provided by Anglo did not provide evidence to contradict this report's conclusion on pipeline life.

From an economic viewpoint it is reasonable to conclude that there will be end use markets available to be served by the DVP over a 60 year life. The other key economic life issue to consider is whether there are sufficient gas reserves to sustain a 60 year life for this pipeline. In this matter there exist a number of uncertainties.

The production of coal seam gas (CSG) is still in its infancy in Australia although it is notable that production in Queensland has grown in recent years from 2 PJ in 1998 to 30.9 PJ in 2004-05 and 60.9 PJ in 2005-06²⁸.

Molopo reported in February 2007 that proven and probable (2P) reserves for the currently producing Mungi field were 58 PJ with proven, probable and possible reserves (3P) at 230 PJ²⁹. It reported 2P and 3P reserves for the Harcourt/ Bindaree fields at 23 PJ and 77 PJ respectively²⁹. It also reported potential sales gas for the Timmy Prospect, located to the south of the existing petroleum lease, at 137 PJ²⁹. It is noteworthy that Molopo announced in April 2007 it had signed a sales agreement covering up to 6 TJ/day from the Mungi field³⁰.

In a release to the Australian Stock Exchange announcing the sale of its interests in the Moura CSG field to Anglo, Origin Energy stated that its share of 2P reserves for the Moura Mine amounted to 51.5 PJ³¹ as at 1 July 2005 but it is understood that this gas is transported via the Anglo Mitsui Pipeline (PPL61).

Anglo Coal reports that the Dawson Mine (formerly known as Moura Mine), now undergoing expansion to 12.7 Mt/year, has a current capacity of 7 Mt/year and an expected life to 2030 or possibly beyond with reserve additions³². Anglo Coal reported proven and possible reserves for the PL and ML areas in the Dawson Valley of 180 PJ but could not separate reserves for the two pipelines³³.

Clearly there is potential for the DVP to carry significantly greater volumes of CSG in the future. Because of the limited amount of information available regarding gas reserves it is not possible to make an unqualified conclusion about the expected economic life of the DVP. There is an incentive for low cost gas reserves to be proven in the region of the pipeline as any discoveries are likely to find markets in the short to medium term because of the favourable location.

However it is difficult to make an unqualified assumption that coal mining will continue in the immediate area of the pipeline for another 50 years, principally because concerns over global warming may serve to constrain growth of the coal mining industry in the long term. It is quite conceivable that coal mining will not be a significant industry in the area in 50 years' time. It is also possible that technology for the extraction of CSG may have developed such that its production will continue in the region even beyond the life of

²⁸ http://www.nrw.qld.gov.au/mines/petroleum_gas/production.html

²⁹ Presentation on website at www.molopo.com.au.

³⁰ PPO Latest 5 April 2007.

³¹ Dated 7 September 2005

³² www.anglocoal.com.au

³³ Email from Minter Ellison dated 16 March 2007

local mines. Other possibilities include gasification or liquefaction of the coal or production of hydrogen.

It is also possible that a major reduction in the cost of carbon capture and storage will be achieved over the next decade or more as a result of the significant research and development effort being applied. If this major cost reduction is achieved, it would be possible for coal to continue its role as a significant power station fuel in decades to come despite having a carbon cost factored into its use. The views expressed here about global warming are understood to be consistent with those expressed by Sir Nicholas Stern, author of the “Stern Review” commissioned by the UK Government in 2006³⁴.

Hence CSG production may or may not continue for the next 50 years in the vicinity of the DVP and gas may or may not be carried in the DVP for the next 50 years. The author is not aware of sufficient evidence to reject an economic life of a further 50 years.

Given that Anglo’s proposed pipeline life of 60 years is assessed as reasonable from an engineering perspective and it is not reasonable to reject the proposed life on economic grounds, it is concluded that Anglo’s assumed pipeline life of 60 years is acceptable.

Forecast Capital Expenditure

No forecast capital expenditure has been proposed by the service provider for the access arrangement period (to 2015). It is noted that Anglo has proposed a trigger mechanism in the event that demand exceeds its forecast by more than 25 percent. Inclusion of this trigger mechanism will allow any major expenditure arising from the need to expand capacity to be considered in that context. Nevertheless it is surprising that no capital expenditure whatsoever has been included as items such as new vehicles and equipment are usually included. Presumably such items have been included in non capital expenditure.

Non Capital Expenditure

The Access Arrangement Information lists costs for the operation and maintenance (O&M) of the pipeline as comprising \$104,169 per annum for Anglo employee labour, \$12,000 for contractor labour and \$47,200 for materials. These amounts give a total O&M cost of \$163,000 in 2006-07. Unit costs, quantities and total cost per item are provided. A total labour requirement of 197 man days per year is estimated. These O&M costs have been examined item by item and are considered to be reasonable in accordance with sections 8.36 and 8.37 of the gas code.

In addition the Access Arrangement Information lists indirect costs of \$487,824 in 2006-07, comprised of \$420,644 for Anglo Coal (Dawson Management) Pty Ltd (the operating company), and \$67,180 for Anglo Coal Australia Pty Ltd (head office of the owner). These indirect costs rise to approximately \$648,000 in 2015-16. 6 percent of the total corporate costs of Anglo Coal Australia Pty Ltd are allocated to the DVP. The allocation for Anglo Coal (Dawson Management) Pty Ltd is derived by subtracting exploration,

³⁴ http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm

technical services costs for non-pipeline activities adding in 'recoveries' from the company's total annual overheads and then allocating 12% to the DVP. Anglo has advised that 'recoveries' are fees charged to Anglo-Mitsui's joint venture partners (Molopo-Helm), in respect of their share of the gas from Anglo-Mitsui partners Molopo-Helm joint venture areas, for production services and processing³⁵.

The inclusion of marketing costs seems anomalous considering that the pipeline only carries gas owned by the Anglo-Mitsui Joint Venture which states that it does not expect demand to increase during the access arrangement period.

Anglo advises that the cost allocation methodology is based upon a best estimate of management time attributable to tasks associated with the DVP³⁶. Noting that Anglo-Mitsui has been an owner of the pipeline only since 31 March 2006³⁷, it seems probable that the proportion of management time devoted to pipeline matters has been higher to date than might be expected in the future because:

- management would not have had detailed knowledge of the asset; and
- the company did not have previous knowledge of pipelines.

The APA Group has cited a rule of thumb indicator that total operating costs for a small diameter pipeline can be expected to be around 2.5 percent of replacement cost³⁸. On that basis the DVP total annual operating costs would be approximately \$230,000. By comparison the total operating costs proposed in the Access Arrangement Information amount to \$650,000 which is nearly three times the benchmark. While it is accepted in the case of the DVP that there will be a lack economies of scale because of its short length, the total operating costs are nevertheless far in excess of what may be considered to be reasonable. Since the direct operating and maintenance costs have been assessed as reasonable it is clear that the allocation of corporate cost overheads is excessive.

It is recommended that Anglo Coal be required to reduce its proposed total operating costs to \$300,000 in 2006-07 dollars. That figure uses the benchmark amount as a guide but allows a margin for the special circumstances of the DVP with its lack of economies of scale and economies of scope.

Demand

In section 5 of the Access Arrangement Information the service provider assumes a constant annual demand of 2.92 PJ, equivalent to a daily demand of 8 TJ. It is noteworthy that:

- coal production in the area near the pipeline is increasing (although gas from the Moura mine is transported via the other pipeline);
- coal and coal seam gas exploration is occurring in the area;
- infrastructure is already in place to supply gas to end use markets; and

³⁵ Note to ACCC from Minter Ellison dated 16 March 2007.

³⁶ Note to ACCC from Minter Ellison dated 16 March 2007.

³⁷ Access Arrangement Information, p3.

³⁸ Central West Pipeline Access Arrangement Information, October 2000.

- end use markets in the region are growing.

Molopo announced in April 2007 that it had signed a contract for the sale of 6 TJ/day of CSG from the Mungi field³⁹. It is understood that this gas will be sold to Anglo-Mitsui and transported via the DVP.

The issue of CSG reserves is discussed in the section on pipeline life. AGL Energy, as the recent purchaser of Sun Gas Retail now has access to contracted supplies of CSG from the Moura, Mungi and Dawson Valley fields. The company considers it possible that CSG production will increase over the medium term and also notes that the DVP is currently operating well below its maximum capacity. Accordingly it advocates a review of the reference tariff if there is a material increase in utilisation of the pipeline⁴⁰. WestSide Corporation is a joint tenement holder, with Sunshine Gas Limited, of ATP 769P to the west of the DVP. The parties are about to embark on a CSG appraisal program in the tenement⁴¹. If the appraisal is successful, WestSide and Sunshine Gas expect to transport gas to customers via the QGP and potentially via the DVP.

In the circumstances it appears quite possible that demand may increase during the access arrangement period but the associated uncertainty is greater than usual for a pipeline. Accordingly if the demand schedule proposed by Anglo Coal is to be accepted the following options should be considered:

- a trigger mechanism for review of the tariff; or
- a shorter access arrangement period; or
- an incentive mechanism which shares the benefits of increased utilisation between the service provider and users and potential users.

As this is a small pipeline and most of the issues are relatively straightforward, it is undesirable to require a shorter access arrangement period. However, the service provider has proposed in the Access Arrangement a trigger mechanism for review of the tariff in the event that demand for gas transportation exceeds its forecast in any year by 25 percent or more. This mechanism would deal with the issue of excess profit for the service provider in circumstances of strong demand growth. An alternative regulatory response could be an incentive mechanism providing for sharing with pipeline users a nominated percentage (say, 50 percent) of revenue in excess of that corresponding to the forecast demand level of a flat 2.92 PJ/year. Such a mechanism would avoid the need to review the Access Arrangement while still providing an incentive to owners to develop the market for CSG in the region. Potential users would be encouraged to make greater use of the pipeline through a reduced tariff. The mechanism could be given effect via a rebate payable in the following year to each user who exceeds forecast throughput by more than 10 percent.

As future demand is quite uncertain, it is recommended that Anglo's proposed demand schedule be accepted, together with a trigger mechanism for tariff review or a revenue-sharing incentive arrangement.

³⁹ PPO Latest 5 April 2007.

⁴⁰ Submission to ACCC dated 19 March 2007.

⁴¹ Submissions to ACCC dated 21 March 2007.

Key Performance Indicators

Non Capital Costs per Unit Length

The Access Arrangement Information document compares non capital costs excluding system use gas for the following pipelines⁴²:

Pipeline	Length (km)	Predominant Diameter (mm)	Non Capital Costs excl SUG (\$000)	Non Capital Costs per 1,000 km (\$000)
Riverland	237	114	707	2,981
Mildura	149	114	529	3,548
Central West	255	168/219	913	3,582
Parmelia	438	356	24,725	15,366
TPA System	1609	various	4,745	10,833
Tubridgi	175	168/273	625	3,569
DVP	47	168	651	13,851

It should be noted that the above table includes information supplied by service providers that may or may not have been assessed by a regulator as appropriate. All dollars are expressed in 2006 dollars.

The Transmission Pipelines Australia (TPA) System is rejected as inappropriate for comparison because of the length, diversity of included pipelines (including the proportion in urban areas) and complexity of the system. The Parmelia Pipeline is also rejected for comparison because the diameter is much larger, it is much longer and includes some urban easement.

The DVP compares poorly with this sample of pipelines on the measure of Non Capital Costs per 1,000 km. The direct operations and maintenance costs of \$163,000 are assessed as reasonable, based on the author's experience. The item is discussed in more detail in the section on Non Capital Costs. The overheads and marketing costs of \$488,000 are excessive and inflate the non capital costs.

The combined non capital costs for the Tubridgi Pipelines are approximately the same as for the DVP. The total length of the two parallel Tubridgi Pipelines is considerably longer (175 km versus 47 km for the DVP). Because the pipelines are parallel in this instance means that certain savings are made by in operations and maintenance costs because travel time of operating personnel is reduced. The right of way maintenance costs are also reduced because the easements are likely to be either common or adjacent. One of the Tubridgi pipelines is 168 mm in diameter but the other is much greater at 273 mm. Thus two factors driving O and M costs down are offset to an extent by another driving them upwards relative to the DVP.

⁴² Access Arrangement Information, p9.

The Riverland and Mildura Pipelines are of smaller but at least comparable diameters although both are considerably longer. However, their non capital costs are only of a similar magnitude to those of the DVP.

The DVP is disadvantaged in any comparison of non capital costs per unit length because certain economies of scale and scope are absent due to its short length. It is impossible to quantify precisely the extent to which the DVP is disadvantaged. However the excessive overheads and marketing component dominates the non capital costs and that component serves to make the non capital cost per unit length substantially higher than for other comparable pipelines.

Non Capital Costs as a Proportion of ORC

An alternative to comparison of non capital costs per unit length is to compare them as a proportion of ORC. This measure eliminates the bias against short pipelines which is inherent in a comparison based on pipeline length.

A high proportion of the cost of constructing a pipeline is directly related to the pipeline's length (for example, the cost of pipe and direct construction costs other than mobilisation). Moreover, an ORC for a short pipeline will tend to be higher per unit length because of cost components unrelated to length such as meter stations.

The following table compares Non Capital Costs as a proportion of ORC for a number of pipelines using information from the relevant access arrangement documentation:

Pipeline	Length (km)	Predominant Diameter (mm)	Non Capital Costs excl SUG (\$000)	ORC (\$M)	Non Capital Costs as % of ORC
Riverland	237	114	384 ⁴³	16.1	2.4
Mildura	149	114	375	12.2	3.1
Central West	255	168/219	708 ⁴⁴	25.5	2.8
Tubridgi	175	168/273	495	24.5	2.0
Central Ranges	336	219	* ⁴⁵	* ⁴⁶	1.5
DVP	47	168	651	9.2	7.1

Figures in the above table are expressed in nominal dollars and have been adjusted for CPI where appropriate.

All of the benchmarking information presented in this report and the Access Arrangement Information needs to be treated with some caution because each pipeline is unique. For example, the remoteness of location has a significant impact on the ease of access and hence travelling time of operating personnel. Also, operators responsible for longer

⁴³ Average for 1998-99 and 1999-00

⁴⁴ CPI-adjusted to 1999 dollars

⁴⁵ confidential

⁴⁶ confidential

pipelines are able to spread overhead costs across more kilometres of pipeline and are likely to be better endowed with in-house human and equipment resources.

Despite the qualifications made about benchmarking of non capital costs there is clearly enough evidence to conclude that the DVP non capital costs are excessive by comparison with other pipelines.

Appendix 1

Task

Non tariff elements

In regard to the policies set out below, the consultant is required to advise on:

- a. if the policy is appropriate and reasonable for the DVP given its operating circumstances
- b. if the policy is usual or typical of the gas transmission pipeline industry
- c. if the policy is considered unusual or not appropriate, what is its impact on users and prospective users
- d. if the policy is considered unusual or not appropriate, should it be amended and what amendments would be required

		Reference
1	The definition and calculation of overruns and daily variances and the charges related to these	AA, section 4
2	Trading policy	AA, section 6
3	Queuing policy	AA, section 7
4	Terms and conditions. In particular, the definition of System Use Gas and delivery point pressure.	AA, schedule 2

Tariff elements

The consultant is required to advise on the items specified in the table below.

		Reference
1	ORC. Assess the inputs, assumptions and the calculations carried out to determine the proposed ORC valuation. This assessment is to include: consideration of what optimisation (if any) should apply, an independent calculation of ORC for the optimised pipeline, a review of the GHD report.	AAI, section3 GHD report Confidential information, section 3.3 & 3.5
2	Pipeline life. Assess the appropriateness of an assumed technical life of 60 years for the DVP. Does the CSM field prospects impact on the economic life of the pipeline? What are the	Confidential information, section 3.3

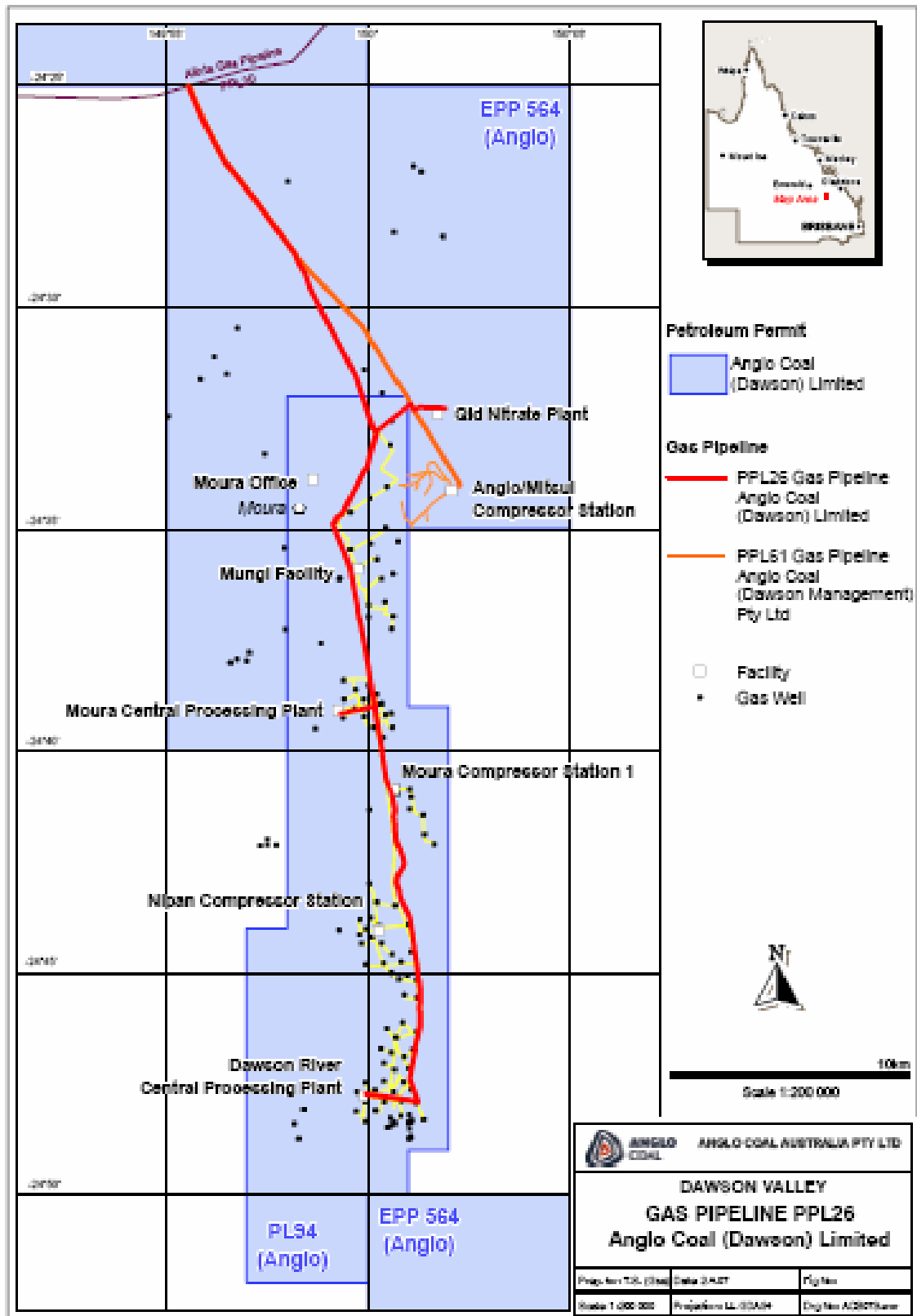
	prospects?	
3	Forecast capital expenditure. No forecast capital expenditure has been proposed for the access arrangement period (up to 2015-2016). Is this reasonable in the circumstances?	AAI, section 3 Confidential information, sections 3.3 & 3.5
4	Non-capital expenditure. Are the activities specified and the costs allocated reasonable? Are there activities and costs that should be included? Are there activities and costs that should be excluded?	AAI, section 4 Confidential information attachment
5	Demand. Constant demand has been assumed for the entire period. Is this a reasonable assumption in light of the CSM field prospects and growth in the Queensland gas market?	AAI, section 5 Confidential information, section 3.1 & 3.3
6	Key performance indicators. Are there pipelines in addition to those identified that would be relevant benchmark pipelines? Are there indicators in addition to that identified that would be relevant indicators?	AAI, section 6 Confidential information, section 3.4

Expected output

A report to staff responding to the above tasks. The report will be placed on the AER website.

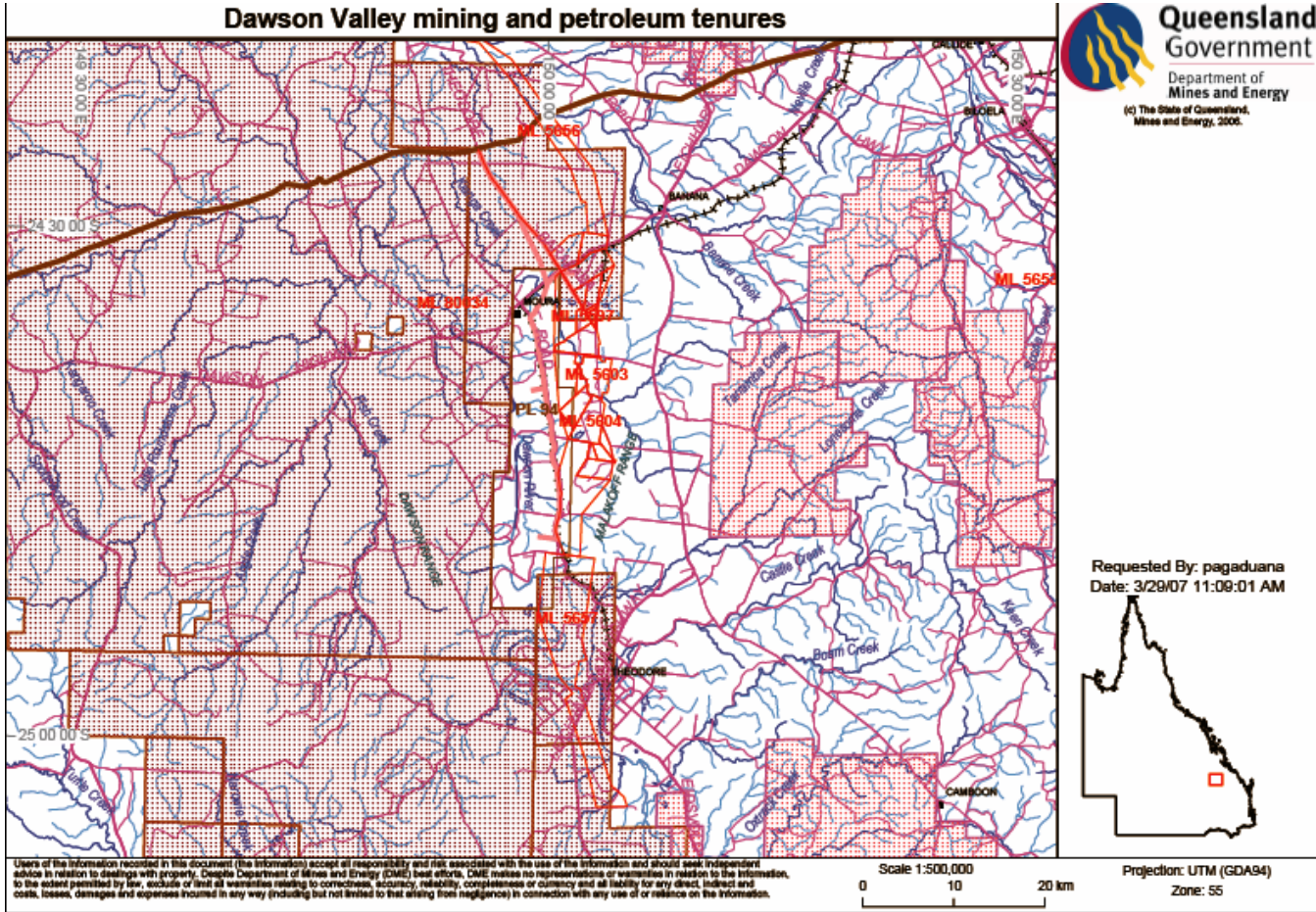
The report will be used to assist staff in the assessment of the proposed access arrangement. Segments and/or statements from the consultant's report may be used in the regulator's decision document. Accordingly, the consultant is required to acknowledge all research materials used and identify all confidential information.

Appendix 2A



Appendix 2B

Dawson Valley mining and petroleum tenures



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