Review of Dalrymple Bay Coal Terminal Remediation Charge

Dalrymple Bay Coal Terminal Management

September 2015

finity

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Mr Anthony Timbrell
Chief Executive Officer
Dalrymple Bay Coal Terminal Management
1 Eagle Street
Brisbane QLD 4000

Dear Anthony

Review of Dalrymple Bay Coal Terminal Remediation Charge

We are pleased to enclose our report documenting our estimate of the annual charge required to fund the remediation of the Dalrymple Bay Coal Terminal.

We would be pleased to discuss any aspect of our advice with you or your colleagues.

Yours sincerely

Mark Hurst

Tim Andrews

Fellows of the Institute of Actuaries of Australia

Sydney
Tel +61 2 8252 3300
Level 7, 155 George Street
The Rocks, NSW 2000

Melbourne
Tel +61 3 8080 0900
Level 3, 30 Collins Street
Melbourne, VIC 3000

Auckland
Tel +64 9 306 7700
Level 5, 79 Queen Street
Auckland 1010

Finity Consulting Pty Limited ABN 89 111 470 270

finity.com.au / finityconsulting.co.nz

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Detailed Findings

1 Introduction

Finity Consulting Pty Limited (Finity) has been engaged by Synergies Economic Consulting (Synergies), on behalf of Dalrymple Bay Coal Terminal Management (DBCTM), to provide an independent estimate of DBCTM's potential future obligations to remediate the Dalrymple Bay Coal Terminal site. This is being assessed as part of its five yearly Access Undertaking review by the Queensland Competition Authority (QCA), under the *Queensland Competition Authority Act 1997* (the QCA Act).

Applications for access to the Coal Terminal are handled under a process set down in the Access Undertaking (AU). The AU defines the rules for use of the Coal Terminal including setting reference tariffs for users. Part of the tariff reflects the cost to remediate the site. The current AU expires on 30 June 2016 with the next AU applying for the five year period 2016/17 to 2020/21. DBCTM is required to submit a draft AU to the QCA by 19 October 2015 for review and approval, prior to the expiry of the current AU.

We understand that the purpose of our assessment is to assist DBCTM to develop a robust methodology that could be used to self-insure for its future remediation obligations, including an estimate of the self-insurance premium that it will seek to include in its Annual Revenue Requirement (AAR) for the 2016/17 to 2020/21 period.

Our advice has been prepared pursuant to our engagement letter dated 24 August 2015.

1.1 Scope

The scope of this review is to estimate the annual self-insurance premium needed to be collected from users of the DBCT in order to remediate the site.

In undertaking this review we have considered:

- DBCTM's obligations to rehabilitate the terminal site under the lease agreement;
- The remediation cost estimates provided to us;
- Discussions with DBCTM regarding the life of the terminal;
- The amounts that DBCTM has collected from users via the current remediation allowance; and
- The implications of this for the remediation charge.

1.2 Background

Dalrymple Bay Coal Terminal

Dalrymple Bay Coal Terminal exports coal from Central Queensland's Bowen Basin mines. Coal arrives at the terminal by rail with a conveyor network transporting the coal either directly to the wharf for loading or to the stockyard for storage. Ship loaders are used to transfer coal from the wharf conveyors into the holds of ships for shipment to ports around the world.

Leasing Arrangements

DBCTM has an obligation to rehabilitate the terminal site under the Port Services Agreement (PSA) with DBCT Holdings. DBCT Holdings is a wholly owned Queensland Government entity which owns DBCT and leases the terminal to DBCTM.

Lease of the terminal began on 15 September 2001 with a term of 50 years. The DBCT lease agreement states that the Primary Lessee must rehabilitate the premise at its cost within 3 years after the end of the onshore agreement.

In this context, the definition of remediation is to remediate the onshore and offshore lands to their natural state and condition as existed prior to any development or construction activity having occurred.

Previous Access Undertakings

As part of DBCTM's first (2005) AU the QCA approved a $952,710 per annum site remediation charge as part of DBCTM's operating expenditure, essentially allowing it to establish a 'notional sinking fund' to meet its future remediation obligations. This is the amount that is currently being collected.

The annual charge was derived from the following assumptions:

- An estimated site remediation cost of $30 million, in 2004/05 dollars
- An interest rate of 3.5% per annum, and
- A terminal life of forty years.

The current (2010) AU is due to expire on 30 June 2016. We note that a review of the remediation charge was not included with the 2010 Access Undertaking.

1.3 Nature of estimates

The estimates shown in this report:

- Are expressed in fixed dollar amounts which we understand will be converted to a charge per tonne of coal to be included in the TIC.
- Are net of tax. We understand from DBCTM that they will be grossed up as appropriate to allow for the impact of tax on the amount collected.
- Include an allowance for inflation.
- Take into account interest at the specified WACC rate.
- Assume that there will be no major future developments to the DBCT.

We understand that the annual remediation charge will be re-assessed at each five year AU.

Our estimates do not contain any allowance for expenses or profits and hence are expected to be lower than the cost of commercial insurance (if such insurance were available). In Section 4.4, we have included a notional estimate of the annual insurance premium that corresponds to our self-insurance estimate.

1.4 Structure of report

The remainder of this report is structured as follows:

- Section 2 outlines the approach we have adopted to estimate the annual remediation charge.
- Section 3 details the assumptions underlying our results.
- Section 4 summarises the results of our review.
- Section 5 sets out the reliances and limitations associated with our advice.

2 Approach

To estimate the annual amount needed to cover the cost of remediation we have developed an annuity model on the basis that the remediation charge will be set at a level that will accumulate to a value equal to the estimated cost when the terminal is decommissioned. In this calculation we have taken into account the remediation charges already collected by accruing those amounts at the relevant interest rate.

In undertaking this review we have relied on:

- The estimated cost of remediation assessed by engineers, Hatch, in their report titled 'Rehabilitation Valuation 2015' dated 18 September 2015.
- Discussions with Synergies and DBCTM in relation to the planned operations of the facility and options for its ongoing upgrading and eventual dismantling.

3 Assumptions

Our estimate of the annual remediation charge is dependent on several assumptions:

- The rate of inflation
- The applicable interest rate
- Timing of remediation
- Cost of remediation
- Size of the current notional sinking fund.

In this section we set out the reasons underlying the selection of each of these assumptions.

3.1 Inflation

We have assumed an inflation rate of 2.5% per annum which is the CPI rate that the RBA targets over the long term.

We have compared our inflation assumption with the inflation index used in Hatch's 2015 costing report. Our assumed inflation rate of 2.5% per annum is between historical inflation rates implied by the ABS 6427.0 Producer Prices Index (PPI) over the long and medium term. The average PPI growth has averaged approximately 3.7% per annum over the last 19 years and 2.1% per annum over the last 11 years.

3.2 Interest rate

A key assumption required for the annuity calculation is the interest rate. This is the earning rate that it is assumed could be achieved on the remediation charges received. There is an inverse relationship between the earning rate and the annuity payment amount, that is, the lower the interest rate the higher the annual charge required and vice versa.

Following discussions with the DBCTM we have used the Weighted Average Cost of Capital (WACC), which is net of tax, to estimate the annual remediation charge:

- 9.02% per annum – used to accrue the current charges from 2005 to 2010
- 9.86% per annum – used to accrue the current charges from 2010 to 2015
- 7.46% per annum – the future WACC rate used to accrue the sinking fund, and our estimated annual remediation charges, to the year of remediation.

The rationale for using the WACC rate is that the remediation charge is in effect expected to be reinvested back into the business where it can earn the WACC (although theoretically it will be held in a notional fund). This approach assumes that remediation will be paid from DBCTM's capital.

Following discussions with DBCTM we have adopted the WACC rate approach.

3.3 Time until remediation

There are a range of plausible scenarios as to when the site will need to be remediated. These include:

1. At the end of the economic life of the terminal, that is, the lease is terminated early. A recent report by mining research group, Wood Mackenzie, estimates that the economic life of the Bowen Basin, and hence the DBCT is 25 years.
2. That the DBCT is terminated due to environmental intervention. Following discussions with DBCTM, we have assumed that the term to this intervention is 20 years from 1 July 2016.
3. In its original assessment the QCA set the end of the economic life of the terminal as 50 years from 1 July 2004. This implies an additional 38 years until remediation.
4. At the end of the current lease. The lease commenced on 15 September 2001 with a term of 50 years. This implies an additional 35 years to remediation from 1 July 2016.
5. That DBCTM exercises its option to extend its lease for another 49 years on the 50th anniversary of the commencement date of the lease. This implies an additional 84 years until remediation.

The annual remediation charge is very sensitive to the assumed term. Following discussions with Synergies and DBCTM, we have assigned probabilities to each of the options to arrive at a mean term to remediation as shown in Table 3.1.

Table 3.1 – Term to remediation

	Timing of Remediation		Probability
	Number of Years until Remediation	Date of Remediation	
Economic Life	**25**	Jun-2041	**50%**
Environmental Intervention	**20**	Jun-2036	**5%**
QCA Assessment	**38**	Jun-2054	**25%**
End of Lease	**35**	Sep-2051	**15%**
End of Lease + Extension Period	**84**	Sep-2100	**5%**
Mean	**32**	Jun-2048	

Of all of the options identified above, we consider that commercially, the most likely scenario for DBCTM at this stage is that it will be required to remediate the site at the end of its current economic life. This is based on the latest science as documented in the Wood Mackenzie report. We have assigned this scenario a 50% probability.

The next most likely scenario from our point of view is that the QCA's original assessment of the economic life of the terminal turns out to be correct. We have assigned this scenario a 25% probability.

The end of the lease is a possible trigger point although it is not linked to the economic (or environmental) life of the terminal. We have assigned this scenario a 15% probability.

We consider the other two scenarios – environmental intervention and extension of the lease – relatively unlikely and hence have assigned them lower probabilities (5% each).

Based on the assigned probabilities for each scenario we have assumed a mean term to remediation for the calculation of the annual charge as 32 years from 1 July 2016 (i.e. June 2048).

3.4 Cost of remediation

The annual remediation charge is dependent on how much it will actually cost to remediate the site.

Since the original charge was approved in 2006, terminal capacity has been expanded. In 2009, DBCTM commissioned engineers Connell Hatch to undertake a remediation cost estimate for the entire site (up to and including Stage 7X Phase 3). Connell Hatch's report *"Rehabilitation for Dalrymple Bay Coal Terminal (DBCT), Babcock and Brown Infrastructure (BBI)"* dated 29 October 2009, included a cost estimate for remediation.

In 2015, DBCTM engaged Hatch (formerly Connell Hatch) to undertake an updated assessment of the remediation cost estimates for the DBCT as documented in their report *"Rehabilitation DBCT Report Update - Rehabilitation Valuation 2015"* dated 18 September 2015. We have relied on Hatch's most recent estimates of the cost of remediation as shown in the following table.

Table 3.2 – Cost estimate for remediation of DBCT (June 2015 values)

Stage/Project	Do Minimal Projected Cost ($'000)	Full Rehabilitation Projected Cost ($'000)
Stages 1 to 6	238,000	473,000
Stage 6 additional items	200	800
Short term gain	600	5,300
Stage 7X – Phase 1	67,000	121,000
Stage 7X – Phase 2/3	77,000	139,000
NECAP 2009-2015 + SR1 Replacement Project	9,000	28,000
Water quality improvement Phase 2/3 works	47,600	59,500
Total	**439,400**	**826,600**

Hatch's estimated cost of full remediation is $827 million (or $847 million in June 2016 dollars). The report also included two other scenarios:

- "Mothball" the site - $35 million (or $36 million in June 2016 dollars)
- Do minimal rehabilitation - $439 million (or $450 million in June 2016 dollars).

We understand that the PSA currently obliges DBCTM to undertake full rehabilitation of the site. Hence, we have assumed that the cost of remediation will be $847 million (in June 2016 dollars).

The actual cost of remediation could vary significantly from this estimate for several reasons, including:

- The relevant applicable laws, including environmental requirements, prevailing at the time of remediation could be materially different to the current requirements.
- We've assumed no further major changes to the site. If it turns out that major changes do occur then, if appropriate, these changes can be factored into future Access Undertakings.
- Estimation error.

3.5 Existing Notional Sinking Fund

Our estimate of the future annual charge needed to remediate the DBCT site takes into account the charges already collected.

Our estimate of the existing (notional) sinking fund is $21.3 million as at 30 June 2016. This is equal to the current annual charge of $952,710 accumulated at the applicable WACC rate (refer Section 3.2). To calculate the required annual charge we then accumulate this amount to the estimated time of remediation at the future WACC rate of 7.46% per annum.

4 Results

In this section we set out the results of our assessment. We have produced results for a "base" case and also for low and high scenarios. The high are low scenarios are intended to illustrate the financial impact of the uncertainty in relation to the term to remediation and the cost of that remediation.

4.1 Base case

Our Base Case scenario is based on the following assumptions:

- Interest rate: WACC rate of 7.46% per annum - provided by DBCTM (refer Section 3.2).
- Time until remediation (from 30 Jun 2016) – 32 years based on a number of possible remediation trigger points (refer Section 3.3).
- Total estimated costs in current values - $847 million based on costings from Hatch in 2015 (refer Section 3.4).

4.2 Other scenarios

Our low and high scenarios are based on the following assumptions:

- Low scenario - Time until remediation of 38 years (based on QCA's original assessment of the economic life of the site) and the "Do minimal" remediation cost scenario of $450 million. No change to assumed WACC rate.
- High scenario - Time until remediation of 25 years (based on the current assessment of the economic life of the site). No change to assumed WACC rate or the estimated cost of remediation.

4.3 Summary of results

Our estimate of the annual remediation charge under the base case and low and high scenarios is shown in Table 4.1. For each scenario, we have shown the underlying assumptions and the total estimated costs at the time of remediation.

Table 4.1 – Summary of results

	Base Scenario	Low Scenario	High Scenario
Total Estimated Costs ($m, June 2016 values)	847	450	847
Inflation Rate	2.5%	2.5%	2.5%
Interest Rate	7.46%	7.46%	7.46%
Number of Years until Remediation	32	38	25
Total Estimated Costs ($m, at time of Remediation)	1867	1151	1571
Annual Remediation Charge ($m)	**12.8**	**4.0**	**19.9**
Multiple of Current Remediation Allowance	13	4	21

The above table shows that:

- Our Base Case scenario results in $12.8 million per annum remediation charge. This is 13 times the current remediation charge of $952,710. The reason our estimate is so much higher than the original AU is primarily due to the revised estimate of the cost of remediation ($847 million) which is orders of magnitude higher than was previously assumed ($30 million).
- Our Low scenario gives an annual remediation charge of $4.0 million per annum. This is much lower than our Base Case as the "Do Minimal" remediation scenario is estimated to cost around half full remediation, and the term to remediation is 6 years longer (giving more time to collect the required funds).
- Our High scenario is the same as the Base Case except with a shorter term to remediation. This scenario results in an estimated annual remediation charge of $19.9 million per annum.

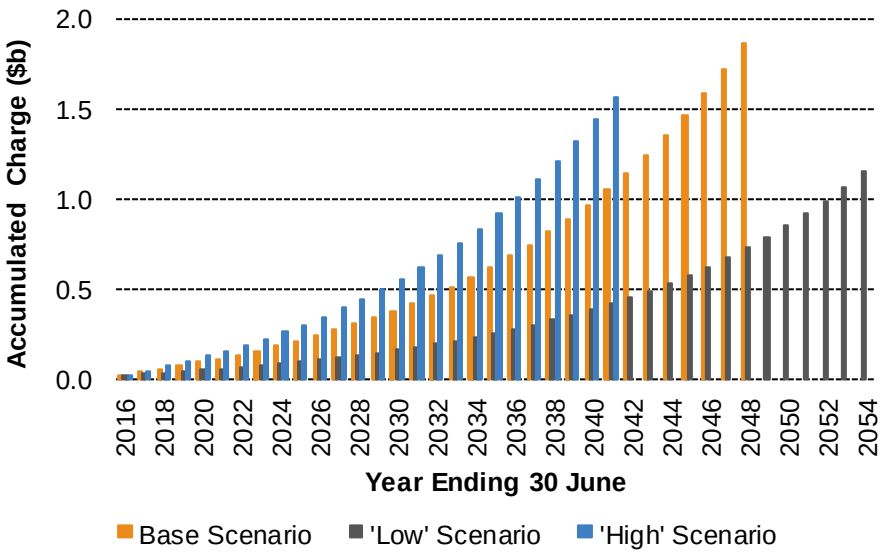
The results for the Base Case and Low and High scenarios imply that a significant increase in the annual remediation charge is required due to both a much higher estimated cost of remediation and a shorter economic life expectancy for the site.

Over time, at each AU, the annual remediation charge can be reviewed to take into account the latest available information regarding interest rates as well as timing and cost of remediation.

4.4 Funding

The following graph shows the accrual of the remediation charge over time under our Base Case and Low and High scenarios.

Figure 4.1 – Remediation charge accrual



Under the Base Case the funds available build up from $21.3 million (the current notional sinking fund) to $1.9 billion in 2048; when remediation of the site is assumed to be required.

4.5 Notional premium

The estimates shown in Table 4.1 are based on an assumption that the DBCTM will collect charges and fund the cost of remediation. However, it may be possible for DBCTM to purchase an insurance policy which is activated when remediation is required.

To estimate the notional premium corresponding to the estimates we have allowed for benchmark premium loadings. The benchmark loadings assumed are 10% of premiums for expenses and 30% of premiums for profit and the net cost of reinsurance. These loadings are based on commercial property insurance benchmarks and are necessarily approximate. The margins sought by insurers can vary significantly depending on the types of risks being written, the level of uncertainty surrounding those risks and the stage of the insurance cycle. The benchmarks applied are thought to be typical of those that might apply for this type of large commercial operation.

Adding the loadings set out above, to the Base Case estimate of $12.8 million results in a notional annual premium of $17.9 million per annum. We also note that an insurer would most likely use the risk free interest rate to discount the cashflows which would result in significantly higher premiums equal to approximately $50 million per annum.

5 Reliances and Limitations

We have relied on the accuracy and completeness of all data and other information (qualitative, quantitative, written and verbal) provided to us for the purpose of this report. We have not independently verified or audited the data but we have reviewed it for general reasonableness and consistency. It should be noted that if any data or other information is inaccurate or incomplete, we should be advised so that our advice can be revised, if warranted.

It is not possible to estimate the annual amount needed to remediate the DBCT with certainty. As well as difficulties in knowing the timing and cost of remediation, outcomes remain dependent on future events, including legislative, political, environmental, social and economic forces. In our judgement, we have employed techniques and assumptions that are appropriate, and the conclusions presented herein are reasonable, given the information currently available. However, it should be recognised that the annual amount required will likely deviate, perhaps materially, from our estimates.

This report has been prepared for the sole use of DBCTM for the purpose stated in Section 1. It is not intended, nor necessarily suitable, for any other purpose. Members of Finity staff are available to answer any queries, and the reader should seek that advice before drawing any conclusions or any issues in doubt. The report should be considered as a whole.

We understand that DBCTM may wish to provide a copy of our report to the QCA. Permission is hereby granted for such distribution on the condition that the entire report, rather than any excerpt, is distributed. No other use of, or reference to, this report should be made without prior written consent from Finity Consulting, nor should the whole or part of this report be disclosed to any other person.

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