NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215

T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

Stewart Smith
Director, Committees
NSW Parliament

15 December 2014

By email: Jenelle.Moore@parliament.nsw.gov.au

Inquiry into the Performance of the NSW Environment Protection Authority
NSW Minerals Council Questions on Notice

Dear Mr Smith

Thank you for the opportunity to appear before the Legislative Council General Purpose Standing Committee No. 5 on 10 November 2014 to provide evidence in relation to the Inquiry into the Performance of the NSW Environment Protection Authority.

I have reviewed the draft transcript. I have attached a copy of the draft transcript with corrections marked in red.

Below I have outlined responses to the Questions on Notice that were raised during the hearing.

1. General information about the coal chain

> *"I am wondering what information the industry has about how many trips the average coal wagon would undertake from the coal loading facility to the port; so any and all information you could give us, recognising that we are ultimately not being asked to make recommendations about whether the wagons ought to be covered; this is an inquiry into the EPA. But simply to inform Committee members, given the currency of this debate, that would be much appreciated."*

Coal chain infrastructure and capacity

The Hunter Valley coal chain includes 27 active loading facilities across the Hunter Valley, Central Coast, Western Coalfield and Gunnedah regions, which transport coal by rail to 3 unloading facilities at the port of Newcastle.

Travel distances from mines to the port vary from 30 km to 380 km.

The loading points are operated by the mines, the rail track is operated by the Australian Rail Track Corporation and the three main train operators are Pacific National, Aurizon and Freightliner. Port Waratah Coal Services operates two unloading facilities at Kooragang and Carrington, and Newcastle Coal Infrastructure Group operates a third at Kooragang.

The Hunter Valley Coal Chain Coordinator plans and schedules the movement of coal through the coal chain and also conducts long term capacity planning for the network.

Approximately 50 trains operate on the network. Most trains have between 82 and 96 wagons with a gross capacity of 120 tonnes per wagon, resulting in up to 9,300 tonnes of coal being transported per

NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215
T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

train. Around five trains have fewer carriages and/or smaller wagon capacities. In total, there are more than 4,200 wagons operating in the Hunter Valley coal chain.

There are approximately 56 return train trips to the Newcastle ports each day - equivalent to each train completing just over one round trip each day.

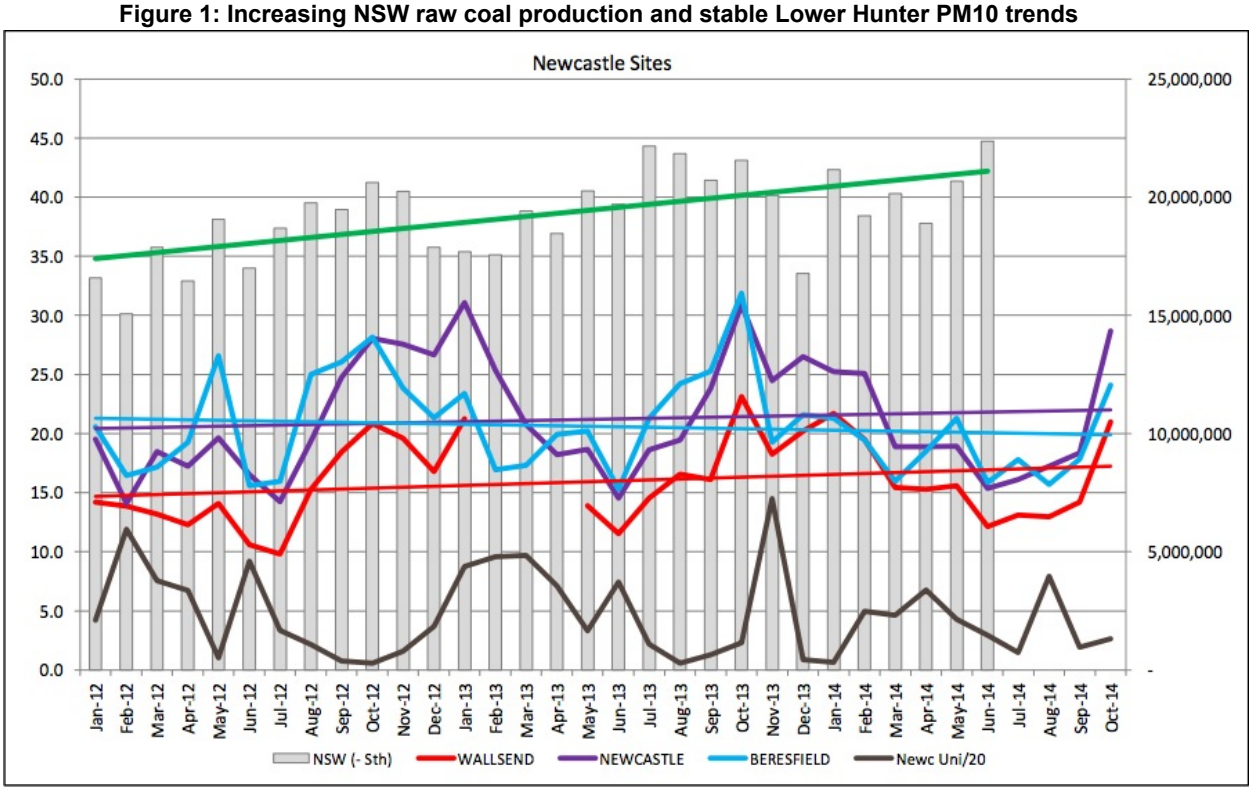
Coal exports from Newcastle were 150 million tonnes in 2013. Newcastle Coal Infrastructure Group is approved to handle 66 million tonnes per annum. Port Waratah Coal Services is approved to handle 145 million tonnes of coal a year. If Port Waratah Coal Services' Terminal 4 is approved, its total approved capacity will increase from 145 to to 215 million tonnes per year.

Coal production and air quality trends

In recent years, as coal production has increased substantially, air quality trends have remained relatively stable in the Lower Hunter. The graph below plots NSW raw coal production (excluding Southern Coalfield), monthly averages from the three long term Lower Hunter air quality monitoring stations and rainfall at Newcastle University from January 2012 - October 2014.

The trend lines indicate that air quality has remained relatively stable compared to the clearly increasing trend of coal production. This demonstrates that increasing coal production and exports through the Hunter Valley coal chain are not necessarily correlated with increases in particulate matter in the Lower Hunter.

Figure 1: Increasing NSW raw coal production and stable Lower Hunter PM10 trends



Souces: Office of Environment and Heritage
Bureau of Meteorology
Coal Services

NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215
T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

Monitoring shows more dust settles next to the New England Highway than the rail corridor

Bloomfield Colliery has been monitoring dust deposition at two locations in Thornton since January 1997. One of the dust deposition gauges is adjacent to the New England Highway (D7) and the other is adjacent to the main north rail line (D8). The monitors are approximately 1.2 kilometres apart.

Dust deposition monitors are used to measure the weight of dust that settles at the monitor. Dust deposition is used to assess nuisance impacts such as dust build up on outside surfaces. Dust deposition samples are collected monthly and the amenity criterion limit is 4 grams of deposited dust per square metre per month (4g/m2/month).

A summary of the results from the two monitors at Thornton is outlined below.

Table 1: Dust deposition rates at rail corridor and New England Highway

Monitor ID/Location	**D7 New England Highway, Thornton**	**D8 Main North Rail Line, Thornton**
Monthly Deposition Rates (g/m²/month)		
Min	0.40	0.20
Mean	**1.74**	**1.51**
Median	1.60	1.40
99th percentile	3.93	4.08
Maximum	4.9	5.68
Exceedances (by month)	2	2
Total readings	188	185
Rolling Annual Average Deposition Rates (g/m²/month)		
Min	1.22	0.92
Mean	**1.74**	**1.50**
Median	1.69	1.37
99th percentile	2.49	2.55
Maximum	2.57	2.67
Exceedances	0	0

What this long term dust deposition monitoring shows is:

- On average, around 15% more dust settles at the monitor next to the New England Highway than at the monitor next to the rail corridor.
- As well as higher average rates of dust deposition next to the highway, the highway monitor also has a higher number of months recording a higher reading, with 59% of months higher at the highway monitor versus 32% being higher at the rail corridor monitor (9% of months showed equal readings).
- Rolling annual average dust deposition rates are well below the nuisance dust impact assessment criterion of 4 g/m²/month.
- Monthly dust deposition rates only very rarely exceed this level, with both sites recording 2 months where the dust deposition rate exceeded the nuisance dust impact assessment criterion. This equates to less than 2% of the monitoring period.

The monitoring does not indicate that there is significant dust deposition issue resulting from dust from coal trains, and suggests that there are other parts of the region that warrant greater attention in terms of nuisance dust than the rail corridor.

NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215
T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

2. Measurement of coal at loading facilities and unloading facilities

> *"Could you advise the Committee as to how the loading and unloading are measured? Is it volumetric? Is it just a guess or do they weigh the bogies?"*
>
> *"How is the sold coal then measured? At the unloading terminal I take it your members are paid by what is delivered by ARTC? Is that correct?"*

There are several ways in which coal is weighed during train loading, including batch weighing systems that load a specified weight of coal into each wagon, and load point weighbridges that measure the weight of each wagon.

ARTC also operates several weighbridges throughout the rail network to weigh wagons in transit.

At the port's coal terminals, unloaded coal is measured by conveyer belt as each train is unloaded. This is reconciled with the shipping information provided by the loading facility and is also reconciled against the shipping information provided by ship draft survey prior to sailing.

The weighing systems in place are fit for purpose, which is to allow coal volumes to be measured at an accuracy that allows contractual obligations to be fulfilled.

The Committee's focus at the hearing was on coal loss that could contribute to dust emissions along the rail network. The weighing systems are not designed for or suitable to use to attempt to quantify small amounts of coal that may be lost during transport.

3. Cost of coal wagon covers

> *"Before today I had heard that the capital cost to cover the wagon was around $7,000; you say $10,000 to $15,000. I was wondering if you could get back to us in writing with some more detailed information about what the industry contends the cost impost would be if the regulator was to impose a requirement as suggested by the Senate committee."*

<u>Estimates of cost of individual wagon covers</u>

Connell Hatch (2008)[1], in its studies to evaluate management practices relating to fugitive dust emissions in Queensland, made two estimates regarding the costs of wagon covers:

- $10,000 additional cost when designed into a new wagon - this cost does not include the additional costs of infrastructure upgrades etc that would be required (outlined in further detail below)

- $5-$8 per wagon trip for a retrofit installation to existing wagons on a leasing arrangement - this was based on an individual supplier quote and is claimed to include any required infrastructure upgrades, operator training and maintenance. However, how this figure has been derived is not outlined in the report and it is difficult to assess its justification or accuracy. On face value, it appears to be a significant underestimate of total costs.

Given that the details of the leasing arrangement are not outlined in the report, the $10,000 estimate is a more simple figure on which to estimate costs. However, given that the report is now 6 years old and that a retrofit wagon cover would cost more than a cover designed into a new wagon, a better estimate of the capital cost of retrofitting wagon covers would be $15,000.

[1] Connell Hatch (2008), *Final Report - Environmental Evaluation of Fugitive Dust Emissions from Coal Trains, Goonyella, Blackwater and Moura Coal Rail Systems*

NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215
T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

Assuming a cost of $15,000 per wagon, for the 4,200 wagons operating in the Hunter Valley Coal Chain the cost of the wagon covers alone would be in the order of $60 million, however there are significant additional costs that would be incurred that are outlined in more detail below.

Furthermore, there is a variety of wagon types that operate in the network. Each would require a different wagon cover design and any associated infrastructure upgrades would need to cater for the different designs, further complicating implementation. Preliminary advice from wagon suppliers indicates that a considerable proportion of existing wagons do not have the structural capacity to support wagon covers since they have not been designed with this in mind.

It should be stressed that the Connell Hatch (2008) studies found that *"lids are not practical and are not a cost effective mitigation strategy to reduce coal losses from the top of loaded coal wagons."*

Estimates of total costs of wagon covers and associated infrastructure upgrades

As well as the costs of the wagon covers themselves, there are significant associated costs that would be associated with implementing wagon covers, which are summarised below.

- Impacts on network efficiency - the Hunter Valley Coal Chain is an extremely complex freight network that requires careful planning and is finely tuned to achieve maximum efficiency. The implementation of wagon covers would have a material impact on network efficiency resulting from longer loading and unloading times and the impact of wagon cover failure on train operation. A 5% increase in train cycle time is notionally equivalent to a 5% reduction in system capacity, which would require further capital investment to make up the reduction.

- Wagon cover maintenance - wagon covers would require regular maintenance to ensure safe and effective operation. Connell Hatch (2008) estimated maintenance costs could be $10 per day per wagon. This would result in a $15 million maintenance cost per year based on the current fleet of approximately 4,200 wagons.

- Loading facility upgrades - each of the 27 operating loading facilities would need to be modified to ensure sufficient clearance over the wagon covers; to install devices to open the wagon covers upon entry and close them upon exit; and modify existing loading chutes to ensure no interference with the covers.

- Unloading facility upgrades - clear visibility into wagons is essential during unloading to monitor the unloading process. The eight unloading points across the three unloading facilities would need to be upgraded to ensure sufficient clearance over the wagon covers in the unloading shed and to install devices to open the wagon covers upon entry and close them upon exit. Power stations that receive coal by rail would also require upgrades.

- Rail infrastructure upgrades - there is a defined envelope that the locomotives and wagons must meet to ensure their safe passage through the rail network. If the wagon lids caused this envelope to be exceeded, upgrades to rail infrastructure such as tunnels and bridges would be required.

- Impacts of reduced capacity during installation - the installation of wagon covers on each train would be a long process that could take weeks. Each train would be out of operation for an extended period of time while the wagon covers were installed, and the overall installation process could take years to complete.

- Reduced capacity of each wagon - the tare weight of each carriage would increase, reducing the capacity of coal that can be carried and thereby increasing the required number of train movements. Connell Hatch (2008) suggested that if the cover weighed more than 250 kg it

NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215
T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

could push average measurement at the weighbridge to the next level, thereby reducing the amount of coal that could be loaded.

In addition to these costs, the introduction of wagon covers would introduce a whole new range of safety risks for the workforce and potentially the public. Depending on the wagon cover design, there could be requirements for additional staff to open, close or inspect wagon covers at both loading and unloading facilities, creating additional costs and safety implications. The impact of a faulty wagon cover not closing properly could be significant.

The Planning Assessment Commission, in its review of the Port Waratah Coal Services T4 project, concluded (our emphasis):

> *"There is little or no evidence that uncovered wagons contribute significantly to particulate air quality in the Newcastle area and there is no justification for recommending that wagons be covered. To the extent to which emissions from loaded wagons are identified as a problem, requirements to profile loads, maintain moisture levels and/or apply veneers to suppress dust appear to represent more viable, cost effective alternative controls."*

Apart from having negligible benefits from an air quality perspective, it is very clear that attempting to retrofit wagon covers in the Hunter Valley coal chain has extensive financial and practical implications.

4. Costs of veneering

> *"Also the wagon costs of veneering"*

The need for veneering

While veneering may be viewed as an 'easy' alternative to wagon covers, the decision to implement veneering still involves significant costs. Any decision to implement veneering should be based on a scientific appraisal of the need for dust mitigation and if this is demonstrated, an evaluation of the effectiveness of either water alone or a water and veneer mixture.

As outlined above, the Planning Assessment Commission, in its review of the Port Waratah Coal Services T4 project, concluded *"There is little or no evidence that uncovered wagons contribute significantly to particulate air quality in the Newcastle area"*. This does not support any blanket requirement to veneer loaded coal wagons throughout the Hunter Valley Coal Chain.

Previous wind tunnel testing of six of NSW coal types has shown that the coal types tested posed a very low risk of dust emissions during transport[2]. The research found that the moisture content in the coal was sufficient to minimise potential dust emissions. Requiring the application of veneer at these mines would be a wasted cost, putting jobs at risk for no material benefit.

NSWMC is in the process of conducting further wind tunnel testing on a broader range of coal types. We are aiming to have this testing completed early in 2015 and will update the Committee with the results when they are available.

An evidence based approach must be adopted to ensure that the application of water or veneer is only required where it is demonstrated to be needed and the most appropriate surface treatment has been investigated. This is likely to be limited to certain mines.

[2] Newcastle Herald, 18 August 2012
http://newsstore.fairfax.com.au/apps/viewDocument.ac;jsessionid=95959B71108A8B6A50F2D2189B1D5408?sy=afr&pb=all_ffx&dt=selectRange&dr=1month&so=relevance&sf=text&sf=headline&rc=10&rm=200&sp=brs&cls=563&clsPage=1&docID=NCH120818LI6AL27CRO3

NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215
T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

Costs of veneering

The installation of veneering infrastructure involves an initial capital outlay of approximately $40,000-$60,000 (consisting of storage tanks, spray bars, mixing devices). The total cost of installing veneering infrastructure at each of the active load points in the Hunter Valley Coal Chain would be in the order of $1.5 million.

Industry feedback from Queensland indicates that veneering costs between 3 and 9 cents per tonne of coal. The variation in costs is based on the veneer supplier and the application rate of veneer. Based on the 2013 coal exports from Newcastle of 150 million tonnes, this would result in an annual cost of $9 million using a median veneering cost of 6 cents per tonne.

At a total cost of $10 million to establish and operate veneering across the network for the first year alone, any requirement to veneer is a decision that must be made in based on a clear understanding of its need and benefit.

5. Mining companies' handling of community complaints

> *Do your members directly receive complaints about pollution, whether they be what we are discussing here today, on the side or anything like, and if you do, how many, and how do your members respond?*

Members receive complaints directly and keep a record of all complaints received. Complaints may be received directly from members of the public and also from Government agencies who receive complaints from the community and follow them up with the mines.

The complaints records contain information including:

- the date and time of the complaint
- the method by which the complaint was made
- any personal details of the complainant provided
- the nature of the complaint
- the action taken in response to the complaint, including any follow up contact with the complainant
- if no action taken, the reason no action was taken.

The response to complaints varies depending on the nature of the complaint, which varies considerably. For example, a review of monitoring data may be completed to gauge compliance with blasting approval conditions if a complaint is received in relation to a specific blast. Mines can also modify their operations in response to complaints in order to reduce impacts.

Complaints information is reported to the EPA through the Annual Return. Complaints information is also reported to the Department of Planning and Environment and the Division of Resources and Energy through the Annual Environmental Management Report.

The number of complaints received varies considerably between operations and from year to year.

NSW MINERALS COUNCIL
PO Box H367
Australia Square, NSW 1215
T 02 9274 1400
nswmining.com.au
ABN: 42 002 500 316

6. Responsibility for conveyors between mines and power stations

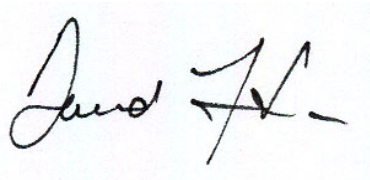
> *Who actually owns the cross-country conveyors that deliver coal to the power station? Is it the suppliers or somewhere else, generally speaking? ... In other words, who is responsible for the maintenance of those and any air quality issues that arise from those long-distance conveyors?*

The conveyor systems that deliver coal to the power stations are generally owned and maintained by the power stations, although there are some conveyor systems where ownership changes at a point along the system between the mine and power station.

The conveyors operate in a covered system. The operators of the systems in the Hunter are not aware of any significant air quality issues associated with them.

Should the Committee require any further information, please contact me on (02) 9274 1400.

Yours sincerely



David Frith
DIRECTOR INDUSTRY AND ENVIRONMENT